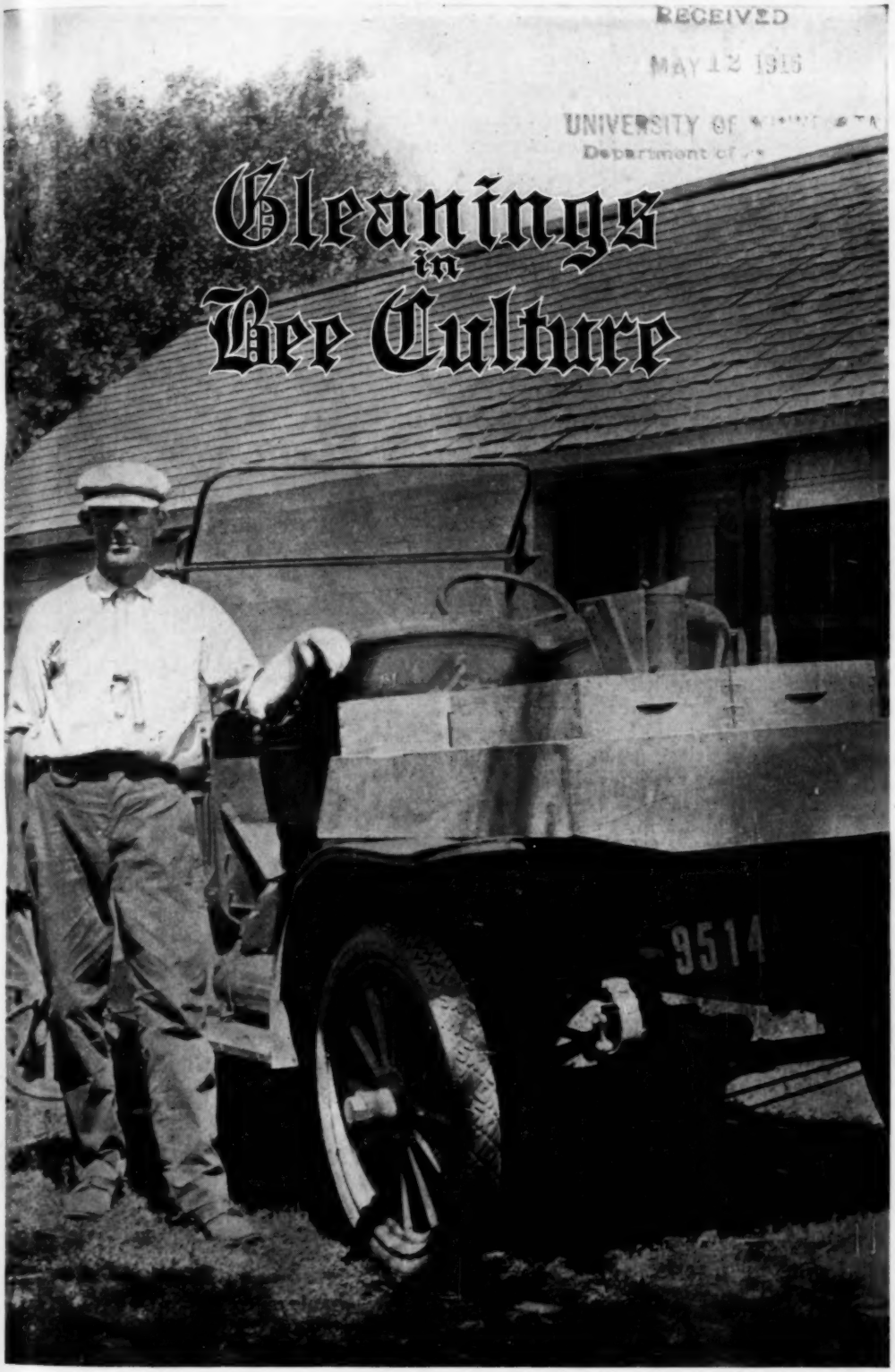
READING ROOM
DO NOT REMOVE
LIBRARY
RECEIVED
MAY 12 1916
UNIVERSITY OF
Department of

Gleanings in Bee Culture



Vol. XLIV MAY 1, 1916 No. 9

The Lure of the Land, $1.50

By Harvey W. Wiley, formerly Chief Chemist of the United States Department of Agriculture

Gleanings in Bee Culture (1 Year) $1.00

Both for $2.00 Postpaid

The author of THE LURE OF THE LAND encourages business men to gratify their longing for the freedom of the open air, but at the same time portrays the problems to be solved and the hard work required in order to make farming pay. A very readable book, human in quality yet invaluable for reliable information.

Range of Topics Included in THE LURE OF THE LAND

The Lure of the Land,
The Boomers and the Boomees,
The Born-on-the-Farm Myth,
The Dairy the Hope of the Small Farm,
Health on the Farm,
Farm Labor,
Prohibition for the Farmer,
Is the Small Farmer to Disappear?
The Place of the Farmer in the Social Scale,
The Farmer's Market,
The Farmer and Parcel Post,
Farm Finance,
Back to the Farm,
Genesis of the Soil and Its Possibilities,
Power on the Farm,
What is Becoming of Our Soils?
Dry Farming,
The Function of Water in Agriculture,
The Decreasing Meat Supply,
Uncle Sam's Big College,
Uncle Sam's Big Farm.

Renew your Subscription to GLEANINGS in connection with an order for a copy of THE LURE OF THE LAND

Both for $2.00

Canadian postage, 30 cts. extra; Foreign postage, 60 cts. extra.

The A. I. Root Company, Medina, Ohio

STOP! LOOK! READ!

MARCHANT'S FAMOUS 300-POUND BREEDERS are now being bred in Florida during our honey harvest, and every beekeeper knows the best queens are reared during the honey harvest. Our 300-pound breeders are still holding their own; daughters from these breeders have on THEIR FIFTH STORY IN THE FIRST WEEK OF THE HONEY HARVEST now being gathered in Florida.

When you order Bees and Queens from us you get QUALITY, PURITY, AND HONEY-GATHERERS. We can fill your orders from the above famous strain for Queens, Bees, Nuclei, and Full Colonies promptly, or at such time as the purchaser may desire, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. We ask you to give us a trial and let us prove to you that everything we claim for our bees is true. We will ship from Florida until May 20; after that date from Canton, Ohio. Prices as follows:

ISLAND-BRED ITALIAN QUEENS.
Shipments begin March 1.

	1	6	12
Untested	$1.50	$ 7.50	$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

Tested Breeding Queens, $5.00 and $10.00 each.

PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
½-lb.	$1.50	$ 7.50	$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

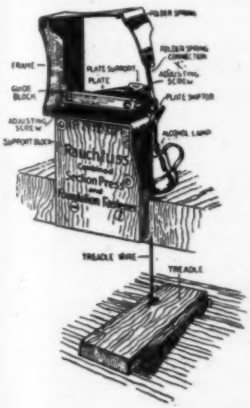
(These prices are without Queens)

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus ..$2.00	Three-frame Nuclei ..$4.00	Eight-frame Colony .$ 8.50
Two-frame Nuclei ... 3.00	Five-frame Nuclei ... 5.00	Ten-frame Colony .. 10.00

Address all communications to
THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

Make More Profit by Reducing Cost of Production



Comb-honey producers can put up their sections complete in less than half the time with a **RAUCHFUSS COMBINED SECTION-PRESS AND FOUNDATION-FASTENER.** Now used by hundreds of Western beekeepers who would not think to be without it any more.

IT IS GUARANTEED TO DO MORE AND BETTER WORK THAN ANY OTHER DEVICE ON THE MARKET. Your money back if not entirely satisfactory. Made for 4¼x4¼ and also for 4 x 5 sections.

PRICE $3.00, COMPLETE WITH LAMP AND TREADLE, DELIVERED POSTPAID ANYWHERE IN THE UNITED STATES. Write for 68-page illustrated catalog of the best Bee-supplies made.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION
1424 Market Street **Denver, Colorado**

Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price $2.00 prepaid
Clubbed with "Gleanings" one year, $2.75

THE A. I. ROOT COMPANY
Address the Medina Office

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. **Agents wanted. Big Profits. Write for Catalog.** **THE BEST LIGHT CO.**
308 E. 5th St., Canton, O.

SQUAB BOOK FREE

Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post, $6 to $8 doz. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 815 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Managing Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick, E. G. Baldwin, Grace Allen.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE.—E. Bondonneau, 154 Avenue Emile Zola. *Per year, postpaid, 8 francs.*

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

Contents for May 1, 1916

EDITORIAL 339
Comb Honey, Over-supply of 339
Advertising Honey 339
Death of C. H. Lake 339
Drifting in Quadruple Cases 339
Cherry-growers Want Bees 340
Bees, How They Wintered 340
Combless-package Business 341
Milk from Sweet-clover Hay 341
Beekeeping in Wisconsin 341
Country Gentleman on Sweet Clover 342
Cold-water Paint 343
Foreign Exchanges, Fate of 344
STRAY STRAWS 345
Clipping Wings on Both Sides 345
Sealed Queen-cell Grubs 345
Smelling Organs of the Bee 345
DIXIE BEE 346
BEEKEEPING AMONG THE ROCKIES. 347
National Beekeepers' Association 347
NOTES FROM CANADA 348
Clipping Wings by Women 348, 349
Season in Ontario 348
Devil's Paint-brush 349
Sweet Clover in Ontario 349
CONVERSATIONS WITH DOOLITTLE. 350
Drawn Combs in Sections 350
GENERAL CORRESPONDENCE 351
Feeding Supers of Bees in Outyards 351
Imperial Valley, Bees in 353
Trips to Out-apiaries 354
Non-swarming System, Good 355
Outyards vs. Central Plant 357
Comb Honey from Out-apiaries 358, 362
Colonies, 100 to the Apiary 359
Automobiles for Outyards 363
Out-apiaries in Rhode Island 364
Swarming, to Prevent 361, 366
Motor Cycle for Bee Business 368, 369
Home Yards, Success with 370
Auto Trailer for Out-apiary 371
Visiting Apiary Four Times a Year 371
Sheep in Apiary—Poem 372
HEADS OF GRAIN 373
Winter in Montana 373
Binding Journals 373
Drouth Broken in New Zealand 374
Comb Honey 2 Tons from 75 Hives 374
Taxes on Bees 375
OUR HOMES 375
Christians and War 377
Mites, Remedy for 378
Pine Needles as a Mulch 378
HIGH-PRESSURE GARDENING 379
Spineless Cactus 379
TEMPERANCE 380

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department — J. T. CALVERT, Business Manager
H. H. ROOT, Managing Editor — E. R. ROOT, Editor — A. L. BOYDEN, Advertising Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV. MAY 1, 1916 NO. 9

EDITORIAL

THERE are several very strong articles in this issue for the expert honey-producer. Particular mention should be made of the one by J. A. Green on page 351 for a new-old plan for freeing supers of bees without any bee-escapes, brushing, or smoking, inside of 15 minutes. Do not forget to read this and the other articles.

Over-supply of Comb Honey

THE market is still well supplied with comb honey, and, as we have stated before, considerable will be carried over, and, of course, that means that some of it will be granulated. Extracted honey of good table quality seems to be pretty well cleaned up, and beekeepers, where they can do so, might do well to change over to extracted. The prospects for a crop of clover honey, alfalfa in the West, and mountain sage in California, are excellent. If there should be another big crop of comb honey the same as last year, there will be a slump in prices.

Advertising, like the Hertzian Waves of the Wireless, Radiate in all Directions

ELSEWHERE mention of the fact is made that extracted honey is being fairly well cleaned up. Said an advertising man of large experience, "Mr. Root, your large campaign of advertising honey has not only helped you, but it has boosted all of your competitors who have honey for sale. Such competitors should be exceedingly grateful to you for opening up the market to them," and several of them are. While, probably, more comb honey has been sold this year than any previous one, the production was away beyond the demand.

Death of Chas. H. Lake

MR. C. H. LAKE, of Baltimore, formerly an occasional correspondent for GLEANINGS, passed away on Feb. 20 last. He was, at the time of his death, a member of the Maryland Horticultural Society, of the Luther Burbank Society, and in 1896 he was appointed to a chair in the Maryland Agricultural College, which he held for about five years, during which he conducted a course in bee culture at the College.

Our Cover Picture

A BEEKEEPER owning several out-apiaries, who does not have at least a light roadster for quick trips and light hauling is the exception rather than the rule. Our cover engraving shows Mr. J. W. Schlenker (whose article appears on page 354), standing by his machine just ready for the out-apiary. The light detachable box on the back of the runabout furnishes plenty of space for all the load that is required for quick trips.

We are very sorry that we are unable to use more of the interesting articles on out-apiary management in this special number. Our readers responded so nobly to our request for material that we could have published two or three special numbers on this subject. We have reserved quite a number of these splendid articles for use later on in the season.

We still have room for a few more good articles on the subject of wax production and wax-rendering for our June 1st issue. Such material should reach us, however, not later than May 10.

Drifting in Quadruple Winter Cases

WHILE our bees have come out in excellent condition in the big winter cases, four hives to the case, we are having considerable trouble from drifting—that is, flying bees going into the wrong entrance.

Of course there is more or less drifting in the early spring in any yard; that is, the younger bees, and older ones as well, are quite inclined to fly into the entrance of the strongest flyers during their playspells; but the trouble from drifting is considerably greater with the big winter cases,

Each case looks like every other one, and, moreover, the entrances are side by side.

Not only the home yard but at the outyards we have discovered that some colonies that were strong a week ago are now very weak, while the colonies with entrances alongside of them are abnormally strong. In some cases one hive in a pair will be so strong there is hardly room to get in another bee, while in the next hive in the pair there are but very few bees left.

Our winter cases were placed last fall with the entrances facing all points of the compass, for the express purpose of avoiding this drifting; but apparently it failed to some extent. We hope to overcome the difficulty another year by placing each case near some shrub or bush, and at the same time paint the sides of the case over the entrance a different color from the other side. Otherwise these big cases seem to be a success.

Cherry-growers Want More Bees

WHAT beekeepers may say in regard to the value of bees as pollinators is sometimes considered biased, even tho the beekeeper is also a fruit-grower himself. When fruit-growers, however, who have no interest at all in the bees aside from their value to the fruit crop, demand bees, and more bees, it is pretty convincing evidence. We clip the following from the March 11th issue of *The Packer,* a California paper.

BEES TO AID IN POLLINATION.

Hood River, Ore., March 10.—Growers of the Mosier district have reached the conclusion that the district needs more bees to aid in the pollenization of tracts at the blooming season. The Mosier cherry crop was very light last year because of rain during the blossom period. Growers say that the crop would have been made much heavier if bees had carried the pollen, which was too moist to have been transported by winds. The Mosier growers are adding apiaries to their orchards.

Concerning Queens Mailed from States Having No Inspection Laws

SEVERAL breeders living in states having no foul-brood law or bee-inspection law of any kind are asking for particulars as to shipping bees into other states.

There need be no difficulty along this line provided the honey used in making queen-cage candy is diluted and boiled at least twenty minutes. A statement signed by a notary should be secured, and a copy of this in the form of a printed certificate put on the mailing-cage. This conforms to the postal regulations. Unfortunately, however, as pointed out elsewhere in Stray Straws, boiled honey is not as good for the purpose as the unboiled. Where possible, an inspector's certificate should be used to comply with the ruling, and an unboiled honey from a source where there is no bee disease. A honey of unknown source should not be used.

Some New Automatic Folding Machines

WE explained that our last issue was late, owing to the fact that we were unable to get the paper for GLEANINGS, notwithstanding that our order for a carload of paper had been placed months before. It has been very difficult to get print paper, and some of the smaller magazines and papers have been compelled to suspend publication. Paper has gone up two or three times its ordinary price; and the worst of it is, it is very difficult to get. We finally secured a couple of carloads on contract, and hoped we should be able to get GLEANINGS out promptly; but the installation of some new automatic folding machinery delayed us again on our issues for April 15 and May 1. We will soon catch up now.

By the way, one of these folders will pick up and fold 64 pages at a time. The other machine does smaller work, including the cover of GLEANINGS. GLEANINGS office now has the latest there is in printing machinery, and it needs it.

How the Bees have Wintered

LATER reports show that bees have wintered remarkably well all over the country with one or two exceptions. Severe losses are reported in Montana, Wyoming, and Idaho. How general these losses may be thruout the territory named we are unable to say. The spring is, perhaps, a little late, but the conditions for the growth of clover have been remakably favorable.

How the bees have wintered in Ontario is thus summarized in a report of the Provincial Apiarist, Morley Pettit, Guelph, Ontario, Canada.

Up to the present date, April 20, about 700 persons keeping 20,000 colonies of bees have reported a winter loss of about 13 per cent. The loss was largely due to starving, owing partly to an insufficient supply of stores on account of the high price of sugar, and partly to a mild spell in January, which caused the bees to rear brood and draw heavily on their stores. The few warm days early in April gave the bees a splendid cleansing flight, and their general condition now is reported as very good. Few really heavy losses have been reported from extensive beekeepers. More report-forms than

ever have been returned marked "Not a beekeeper." These are mostly from the smaller beekeepers, who are finding that specialization pays best. It is an indication that the industry is getting on a better business basis from year to year.

Clover prospects seem very good thruout the Province. The latter part of the season of 1915 being wet gave the new seeding an excellent start, and the scarcity of farm labor has increased the acreage seeded down. On the whole, present indications are for a good season, and beekeepers are even more optimistic than usual.

The Combless-package Business has Come to Stay

GLEANINGS was the first to start the business of selling bees in combless packages. Away back in the early '80's A. I. Root did a thriving business; but owing to some difficulties encountered it was dropped for the time being. Later on we took it up again, and succeeded, and our success has been duplicated by a good many others. Bees in pound packages are now being offered at very low prices, and what is shipped in this way is being guaranteed.* And this fact makes it possible for the honey-producer to bring his weak colonies up to the proper strength for building up in time for the harvest. A pound or two of bees in a colony in the spring will make a money-maker, whereas without the boost it will be only an expense and a drag on the business that season.

There is probably no danger in transmitting bee disease when bees are sent without combs. Bees by the pound by express are much cheaper than nuclei or colonies by express or by freight in carload shipments. In time, legislation may prevent the shipment of bees in any other way, or except under certain restrictions. The business has come to stay.

More Milk from Sweet-clover Hay than from Timothy; the Hay Not Injured by being Wet down

ON page 519 of July 1st of last year we referred to that patch of yellow sweet clover from which we took two cuttings that we had on our place. It will be remembered that it furnished a great deal of honey, so that the bees of our home yard were going back and forth to that patch in a perfect roar.

We cut this sweet clover, and fed it to our stock. It looked as if the stumps left would never grow. But they did, and we took off a second cutting. Just about as we were taking it into the barn it rained every day for two or three weeks. It looked as if the hay were ruined; but we gave it to the stock, and they ate it readily. It was so wet when put in the barn that it mildewed and turned white; and yet, remarkable to relate, our cows are eating it in preference to timothy or any other hay; and what is more, says our teamster, the cows are giving more milk than he had been getting from any other fodder the cows have.

Ordinary timothy, red clover, or alsike, if it has been left out in the wet for two or three weeks, as this has been, would have been ruined, not only for milk but for fertilizer as a top dressing; and yet the facts are that, with all this wetting and mildew, the cows prefer this sweet-clover hay and give more milk. The proof of the pudding is in the eating. What would the cows have said of it, if they could talk, if they could have had it without this wetting and if it had not been mildewed?

It is a well-known fact that sweet clover is not injured much by rain after it is cut, and this one thing is a great point in its favor. The farm papers are beginning to advocate it; and the time is not far distant when sweet clover will be grown from the Atlantic to the Pacific, and from the Great Lakes to the Gulf. When that day comes, the old proverb about "milk and honey shall he eat" will come true if it ever did in all the world's history.

Beekeeping in Wisconsin

A PIECE of work managed by N. E. France, Platteville, Wis., is sure to be managed well. H. F. Wilson, Chief of the Wisconsin Department of Economic Entomology, says of him:

> It is now about 18 years since N. E. France began his work as State Apiary Inspector; and no greater tribute can be given him than to record the fact that thousands of the beekeepers of the state believe in him, and depend upon him for guidance. All these years he has worked steadily and unselfishly in the interests of Wisconsin beekeeping and beekeepers.

It is not surprising, therefore, that Bulletin No. 264, of the Agricultural Experiment Station of the University of Wisconsin, by N. E. France, ably assisted by his son, L. V. France, should be an interesting and valuable report, well worth the careful reading of any beekeeper.

* The prospective buyer should first ascertain whether safe arrival is guaranteed; if not, buy of one who does. There is no use in paying express on dead or half-dead bees.

In the first part, statistics are given concerning the general business of beekeeping, showing that about 90 per cent of those who start in bee culture fail because of a lack of knowledge of bees and of modern methods of honey production. A striking lesson is taught by two pictures. The first shows a rundown apiary of 75 colonies kept by a man who never reads nor studies. His average crop from the whole 75 colonies is less than 500 pounds of honey per year. The picture on the next page shows an up-to-date apiary of eight colonies that produced, in addition to honey used at home, 1240 pounds, while an increase to 32 colonies was made.

The number of colonies in Wisconsin is estimated at 150,000, and the annual honey crop as exceeding three million pounds.

The following principal honey-plants are named: Dandelion, May 1 to June 1; white and alsike clover, furnishing most of the surplus honey, June 1 to August 1; basswood, or linden, July 1 to July 20; sweet clover, July 1 to August 1; willowherb, or fireweed; buckwheat, goldenrod, Spanish needle, asters, and many fall flowers in late summer and fall.

The state is divided into six bee regions, and on page 9 a map is given showing the distribution of the principal beekeeping regions. The entire northern part of the state, so far as beekeeping is concerned, is practically undeveloped, altho fairly well adapted to beekeeping.

Italian bees are given the credit of being much less liable to have European foul brood. As might be expected from a man who has had so much to do with the control of bee diseases in his state, Mr. France has devoted several pages of the bulletin to a history of American and European foul brood. There is no question but that the diseases of bees in Wisconsin, as in other states, are forcing the slipshod beekeeper out of business. In time, of course, this will be of untold benefit to the industry. An illustration is given which proves this conclusively. In an old log house were stored the remains of about 300 colonies of bees that died of American foul brood eight years ago. The hives and combs, containing about 1000 pounds of honey, were piled one above the other in this open building where bees, both domesticated and wild, were robbing the honeycombs, carrying the honey to the beeyards of nearby beekeepers. How much better it would have been for the industry if such a beekeeper should never have started! It is fortunate, as Mr. France says, that the number of such beekeepers is rapidly decreasing. Better control and more immediate prospects of eradication of bee diseases exist in the state than ever before, partly due to the increased appropriation for apiary inspection made by the laws of 1913. Practically all the diseased localities are under control.

The Country Gentleman on Sweet Clover; How Beekeepers may Increase their Pasturage

In the issue of the *Country Gentleman* for April 8 appears a valuable article by Mr. E. Bowers on sweet clover for pasturage. As that magnificent paper has a very large circulation, and as this article speaks very highly of the legume, it will have a tremendous influence in breaking down the silly prejudice that exists in the minds of many farmers today, who regard it as a weed.

Among other things, Mr. Bowers says sweet clover makes a very fine pasturage for cows, horses, sheep, and swine; and while these animals will not eat it at first, they will soon learn to like it, and many times will eat it in preference to other fodders. As many as twenty medium-sized hogs will fatten on an acre of sweet clover; and some farmers claim that stock makes better growth.

Sweet clover has an advantage over alfalfa and red clover, he says, in that it will not cause animals to bloat, and bloating causes serious losses to the farmer and stockman.

It not only produces early pasturage, but extends over a longer period of time—long after other plants have ceased to grow. It defies a mid-summer drouth, and frequently is used to supplement other pasturage.

If sown in the spring it will furnish grazing by the middle of May, and it can be pastured thru the season. The second year it comes out early, and makes a very rapid growth.

The plant is gaining popularity in the corn belt; and one farmer states he has found one acre of sweet clover will pasture from two to three times as many cattle as any other plant of which he has any knowledge.

Finally, Mr. Bowers answers the complaint that sweet clover taints the milk. Careful investigation, however, shows that this is not true. In cases where it has done so, the cows were allowed to eat it while being milked.

This article in the *Country Gentleman* is an unusually strong one; and if our readers do not take the paper, they are advised to

get a copy (or, better, several of them) of the issue for April 8 and show it to their farmer friends. In this way sweet clover can be introduced in their locality, and make it much more valuable for their bees.

Sweet clover mixed with white clover or any other clover makes a very fine table honey; and the probabilities are that, as sweet clover becomes more and more popular among the farmers, white clover and sweet clover honey will be mixed by the bees, and thus most of our clover honey will be a combination of the two. Speed the day!

But that day will come sooner if our subscribers will take these articles that appear in the agricultural papers and bring them to the attention of their farmer friends within flying range of their bees.

Missouri Bulletin on Farm Beekeeping

SOME bulletins put out by State Experiment Stations, while valuable to a beginner, are copied quite largely from other bulletins or from standard works in apiculture, hence are less interesting to the advanced beekeeper. Bulletin No. 138 issued in November by the State Experiment Station of College of Agriculture (University of Missouri), is not of this kind. The writers, E. E. Tyler and L. Haseman, have done a considerable amount of original work in the preparation of this bulletin, which, as stated in the introduction, is not intended for experienced beekeepers.

A discussion of the queen, drone, and worker, with something of the natural history of bees, is given in the fore part. On page 7, under "Races of Bees," the term "Goldens" and "Italians" are used synonymously. We do not believe that the authors intended this, for, obviously, while all goldens are supposed to be Italians, not all Italians are goldens.

For an uncapping-can a five-gallon or larger stone jar or crock is recommended, with a notched board across the top for a frame-rack. If a cracker-barrel supported over a galvanized-iron washtub had been recommended instead, it would have been a more practical outfit, in our opinion. No would have to be used. A stone jar would mention is made of a screen, altho one be a rather unwieldy affair to handle when filled with honey or cappings.

A very good frame-nailing guard or rack is illustrated; and to make the handling of frames somewhat more convenient and to lessen the danger of killing bees, the authors advise the use of a bottom-bar ¼ of an inch shorter than the top-bar. This "draws in" each end-bar ⅛ of an inch inside of the perpendicular. This is a good, practical idea, altho if full sheets of foundation are put in, the sheets will have to be cut a little shorter than usual, or, better still, the ends of the sheet should be clipped off to fit the shape of the frame.

Practical instructions are given on handling bees, hunting bees, transferring, etc. For weak colonies in the spring a modification of the Alexander plan is given, consisting of placing the weak colony over a strong one, with the entrance in the opposite direction and a screen between the two colonies.

Methods of making increase are discussed, and for beginners natural swarming is recommended.

On pages 30 and 31 some selected recipes are given, then follow some uses of beeswax. In this connection it may be well to point out an error in the illustration of the top and bottom starter. The lower starter is shown to be perhaps an inch and a half wide. It should not be over ⅝ of an inch. A wider starter will almost surely topple over when the bees cluster on it.

General instructions are given for the different seasons, which, with a brief paragraph on honey-plants, robbing, etc., completes the bulletin.

A Cheap Cold-water Paint for Beehives

IT is not often that we make an editorial mention of any article advertised in our columns; but when we believe that by so doing we can do a real favor to our subscribers we are glad to do so. But this is not because the advertiser requests it. Many of them, doubtless, would be willing to pay a good round price for an editorial space. But this is not for sale at any price.

In the case of the cold-water paint advertised by A. L. Rice, Adams, N. Y., we feel like saying a favorable word. A few days ago one of our subscribers complained bitterly, saying that this "powdrpaint" was not "good," and that we ought to take it out of our advertising columns. As we had seen quite a number of favorable reports concerning it we wrote our correspondent to that effect, and in the mean time sent a copy of our letter to Mr. Rice, the manufacturer. In reply he sent us a large number of letters from his files that he had recently received, speaking in the highest terms of his cold-water paint—how, in some cases, it had outlasted lead-and-oil paint, how that it had been used for several years, and was still looking bright. The fact that these testimonials were unsolicited, and all of them

autograph letters from the writers themselves from all parts of the United States, leads us to believe that our correspondent who made the complaint either must have extraordinary conditions or did not use it right. As it was, Mr. Rice sent him an equal quantity of pure linseed-oil paint, as he wants all of his customers to feel satisfied. But in spite of this our correspondent complained.

There are a good many beekeepers living in hot climates who feel that perhaps they cannot afford to use lead-and-oil paint. Some among them, like Dr. Miller, believe that the mosture in the hives cannot pass thru the walls when the hive is covered with an oil paint. It occurred to us that we might be doing our subscribers a real favor all over the country by telling them of a water paint that has none of the objections referred to by Dr. Miller.

There is nothing that will improve the value of a farm or residence like bright white fences and buildings; and if Mr. Rice has an article that is cheap and good, we feel like giving him a boost. We have carried his advertising for some time, and this is the first complaint we have ever had.

Years ago A. I. Root used on his old original American hives a sort of cement or sour-milk paint. As we remember, it gave good service, was cheaper than lead and oil, and the hives gave good service until he abandoned them in favor of the Langstroth dimensions; for in these days he was experimenting with different hives and frames, and after carefully testing out these hives he came back to the Langstroth.

Our Foreign Exchanges; What the Great War has Done to Beekeeping in Europe

If anything were needed to cause us to realize that things are out of joint in Europe it is the almost complete cessation of the bee-journals of Germany, Belgium, and France, which for so many years have graced our table. We find none here dated later than January, 1916.* *The British Bee Journal* (England) comes to us regularly as before. *The Irish Bee Guide* has been coming also. Several of the friends have asked us lately for the address of the "best German" or "best French" bee-journal; but in each instance we have felt that any journal we could refer to might be out of print by that time. The demoralization of the beekeeping fraternity of all Europe seems to be complete. If that continent were to be compared to a strong colony of bees knocked over by accident it would give one a fair idea of the horrors now taking place in

> "— thy cornfields green, and sunny vines,
> O pleasant land of France!"

The thunder of cannon and the hiss of shell have silenced the peaceful hum of the bee, and, in many cases, the coo of the babe in its mother's arms.

As indicative of the state of things in France even a year ago, we quote the following from our valued exchange *L'Apiculteur* for March, 1915; but in doing so we do not wish to plead the cause of one side as against the other, for it is a battle of the giants—diamond cut diamond, and a lot of them at that.

"Wherever they have passed, the German armies have left nothing behind but ruins. The bees have not escaped the common fate. It even seems that, in the invaded regions, the apiaries have been destroyed systematically in conformity with orders from superiors."

The last copy we have had of that journal was dated November, 1915, and we fear it has at least temporarily suspended.

Even in Switzerland, a neutral country, the people feel the stamp of red Battle's foot. *L'Apiculteur* says, Jan. 1, 1915:

"What a sad New Year's Day! For nineteen centuries it has been sung from our churches, 'Peace on earth, good will to man;' and yet, oh bloody wrong! the Christian people of Europe have been massacring each other. The flower of these nations are cut down by hundreds of thousands; and, as if the slaughter did not go on fast enough, the Turks and pagans are called in to help. What opinion will these heathens form of Christianity when they see these things?"

The writer of the above was the celebrated Ulrich Gubler, whose death we noted last year with his picture.

More than a year has passed since the above extracts were written; and, sad as is their tone, the condition there has steadily grown worse till the bees seem to be left to their own resources while the entire nation has gone to war.

The bee-journal in question speaks of a former Paris manager of the A. I. Root Company's branch office in that city as serving as an officer in the front; and his wife lately wrote us of her experience in trying to carry on his business alone. Thomas Wm. Cowan, at the age of 70, is even reported as serving as a railroad guard. Truly the time has come when "nation shall rise against nation."

* Most of them suspended early last year.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

PROF. BALDWIN, I like your looks, p. 300. Come on in.

ADVICE is given, p. 301, to put the queen below the excluder when transferring. All right; but it needs watching unless a brood is put with the queen. I knew a man to lose his best queen by leaving her below an excluder with no brood. Two cold days came; the bees deserted the queen and left her to perish. The man was no greenhorn either, for I'd been keeping bees some 50 years.

THE water method of transferring, p. 302. "While the two hive-bodies are held in contact, very slowly lower the box hive into the water until the bees have been forced off the old combs." That will take some time; and won't it be pretty hard on the arms? Wouldn't it be just as well to put the hive in the dry tub, and then "very slowly" pour in water?

R. F. HOLTERMANN, you say, p. 310, "I clip the wings on both sides." I wonder why. It's less trouble to clip only one side, and it's handy to have a wing to catch the queen by. The only thing I can think of in favor of clipping both sides is that you can more surely distinguish the clipping when you get a fleeting glimpse of the queen, and I'm not sure of that. Please tell why. [Clipping a queen on both sides would make her more conspicuous, perhaps, but it would be rather difficult to pick her up when it is desired to transfer her to another colony. But after all, does not the one-side clipping make the queen conspicuous enough? She certainly cannot fly, and it is up to Holtermann to explain the reason why.—ED.]

Now comes Penn G. Snyder, and says: "Sugar 2½ + 1 water equals 3½ bulk (your figure). Honey, 3½ bulk, holds 1-5 water, or 2.8 sugar and .7 water. So your recipe, 2½ sugar to 1 water will contain more water than the same bulk of honey." Your arithmetic is off color a bit, friend Snyder, in the present case; for if you add a pint of water to 2½ pints of sugar you will find in your vessel, not 3½, but somewhere about 2½ pints. So in the present case 2½ plus 1 equals 2½. But if you say "weight" instead of "bulk" you've got me, and I acknowledge the corn.

"A pint's a pound the world around" is true of dry sugar and a good many other things, but not of honey nor of any mixture of sugar and water. I took 8 parts (by bulk) of sugar, and as I added water to it, little by little, it gradually shrank in bulk—the more water added the less the mixture—until I had added one part water, and there were then 5 parts of the combined sugar and water. That was the limit of the shrinkage. After that each part of water added made one part more of the mixture.

WHEN I said I had found in sealed queen-cells grubs not half grown, it did not occur to me that I was butting my head against orthodox teachings. Now comes that heterodox chap, Arthur C. Miller, and says: "Don't you know that all the orthodox teaching is that the queen-grubs do receive and must receive a *constant* and abundant supply of the same rich food as is given to worker-grubs during their first three days?" Well, it's the bees that are heterodox, and neither of us Millers. I told only what I saw. Arthur C. goes on to say, "The fact is, the little sealed-up grub is as well or better off than her unsealed sister," and explains that it's the enzymes that keep the baby's mess from going stale, even if it gets nothing fresh for two or three days.

DR. N. E. MCINDOO, one of Dr. Phillips' fellow-conspirators at Washington, it will be remembered, not long ago gave as the result of his investigations that the smell-organs of the bee were to be found almost anywhere except in the antennæ, where we had been taught they were. He has not by any means given up his upsetting investigations. In his latest work, while saying that he has found some organs of smell in the antennæ, he ruthlessly shatters all our ideas about the delicate and discriminating taste of the bee by saying and proving—that it has *no taste at all*—only smell. It happened that, soon after reading his work, I saw a dog after a rabbit. The rabbit was not in sight, but the dog at a full trot was following the trail by the scent. The rabbit had gone over the ground at a lively gait; and if you or I had held our noses to the ground perfectly still, it is not likely we should have discovered any odor of the rabbit by the most careful sniffing; yet that dog kept track of it while on the run. Now, how much stronger is that dog's sense of smell than ours? Probably a hundred times as great. If so, is it at all impossible that the bee may go the dog a hundred better? So it doesn't look at all impossible that a bee may scent a basswood tree or a field of clover two miles or more away.

Grace Allen

THE DIXIE BEE

Nashville, Tenn.

Some of us are treasuring those articles by Mr. Orel Hershiser on European and American foul brood, over against a day we hope may never come—another case of preparedness.

* * *

Brood-rearing seems to be coming on pretty well, tho probably not so fast as tho there had been fruit-bloom. There is a little sealed drone brood.

* * *

"Cut it out!" Mr. Scholl insists, page 223, March 15, referring to drone comb. It sounds a bit personal to some of us who realize that we may not have cut it out so closely as we ought, but we do know what excellent advice it is.

* * *

Most of the reports show bees thruout middle Tennessee to have wintered well, tho we have heard of some that starved out because of failure to feed in the fall. ("Lack of sense or cents?" queries our correspondent reporting it.)

* * *

"Feeding fourteen dollars' worth of sugar every three days, with rain between spells," as recorded by S. H. Burton, Feb. 15, page 153, is certainly persistence in the face of obstacles. Sticking-to-it is one of the qualities that make for ultimate success. Here's hoping Mr. Burton's bees more than repay him this year.

* * *

We lost one colony—queenless. Perhaps it served me right, for my last record of last fall says, "Did not see queen." Otherwise colonies were in fairly good condition, tho I was sorry to observe the last one or two combs to the north in many hives moldy—in some of them, very moldy. Why? And why the one to the north, I wonder? Super covers seemed looser than usual this spring, not sealed down sb tight as other years. Perhaps we fed a little late.

* * *

Just to the end of one alighting-board I was puzzled, one day in the early spring, to find quite an accumulation of pollen balls. There were none around any other hive, or elsewhere by that hive. After watching a bit I saw a little bee with great generous loads of bright yellow pollen drop on that end of the board, and squeeze into the hive thru a tiny opening where the entrance-contractor, a trifle short, failed to reach the end of the entrance. And as she squeezed in, the pollen was scraped off and dropped to the ground, wasted.

* * *

Please, everybody, hold your breath. It looks excitingly as tho we might have a stunningly good year, if something just doesn't go wrong. The weatherman was not considerate during fruit bloom—indeed, in our immediate neighborhood there was practically no fruit-bloom this spring, which you will admit was a grievous disappointment. Of course there are no orchards around here, anyway, but usually there is considerable bloom, all told, in the yards round about. But this year the peach-buds, which had been swelled since early February, were held back thru freezing weather till nearly April, whereupon the trees with a bit of a pout threw out leaves instead of blossoms. So, too, with the early plum. Then it rained almost constantly during the blossom time of the later plums, and there are no apple-trees around here. So we have had to feed part of our little yard to tide over till clover. Out in the country, where there are apple-orchards, things are decidedly better. "This bloom," writes one beekeeper, speaking of apple, "laps over into crimson clover, which in turn laps over into white clover," which certainly sounds good to a city backlotter. But the prospects for white clover are fine, and we are willing to risk a little sugar in the hopes of being ready for it.

* * *

The Bee Larva.

Larva that lies so still,
Wonderful worm so white,
Guarded from ill of hunger or chill
In dusk like a mid-summer night,
How did you come to be?
How did you break the egg?
E'er yet we can see, has the mystery
Encircled a thorax and leg,
Groped for a brain and an eye,
Dreamed of a gossamer wing
And how it will fly when some early June sky
Makes summer a marvelous thing?

Peacefully you lie curled,
Sheltered from struggle and strife,
Tho wings, when unfurled, become part of a world
Of measureless labor and life.
Pray that some elf a choice brings
Of lying summer—long so,
Or wearing out wings doing fair, brave things—
Which would you choose? I know!

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado

With sugar selling at seven dollars and sixty-five cents per hundred pounds bee feed will cost heavily this year, and the bees are going to require a lot of feeding too. Sweet clover and alfalfa are in fine condition, dandelions are in bloom, and breeding is going along in fine shape. It ought to be easy to have all colonies in excellent shape; and if judgment is used much increase can be made at no expense of honey crop. All that the beekeeper needs now is enthusiasm, good judgment, and hard work to have the colonies in prime condition.

* * *

A few weeks ago it looked as if we should have a very early spring, and that there was great danger of the fruit bloom freezing; but it turned cold soon enough to hold back the fruit bloom. Apricots, cherries, and a few apples have suffered; but the great majority of the orchards are safe at this writing. Dandelions have been kept back by the cold weather, and look a little the worse for the freezes. We may not have so many of them this year. Bees that have had protection have wintered well in Idaho, and colonies with good queens and honey have come thru well in Colorado.

Prospects are favorable generally. The prospects are poor in the Arkansas Valley, according to reports I have received. Bees are not in good condition there, on account of the poor season last year. Several cars of bees are to be shipped out of the valley this year. The older irrigated sections are not the honey locations they used to be. Cultivation is too intensive, and sweet clover gets little chance to grow.

* * *

THE NATIONAL ASSOCIATION.

In letters that I received from members and non-members, while secretary of the National Association, the thought was expressed that the National ought to do something for the beekeeper. Instead of asking what shall I benefit if I join? it would be better to say, what will the association ask me to do if I join? If the beekeepers want anything it is up to them to get it. There has been too much waiting for the railroads, the legislatures, the government, the honey-buyers, the commission men, and the National Association to do something for the beekeepers. If the beekeepers want anything individually or collectively they had better go after it. Let us not complain of these agencies. Let's quit expecting charity, and let's dig down and pay for what we want. And do not expect a dollar fee in any association to solve all our beekeeping troubles.

If the beekeepers expect the marketing problem solved it will have to be handled in a business way, and the building will have to be done from the bottom up. The producers who have the surplus must get together and work with the beekeepers who have no surplus, but are nevertheless vitally interested in seeing prices kept up. The beekeeper is just like any other individual. He will sacrifice future profit for present advantage, not so much because he does not look into the future as because he has the present to contend with. Members of associations will sell honey for cash at ten per cent below what could be secured by holding thirty days, and they will sell to competitors of their own associations. A little more capital would enable them to stick by the associations, and on the average they would do better and would be contributing to the life and success of the association.

The National Association has elected officers who will push the association along educational lines only, leaving the commercial interests to others. This, it is hoped, will limit the activities to lines that can be successfully pursued. We cannot lose sight of the fact that too much education cannot be carried on covering foul brood, wintering, and overstocking, and as much, if not more, is lost from overstocking than from the other two, speaking of the inter-mountain region.

It is a pleasure to see that such an amiable and enthusiastic man as Prof. Jager has been elected president of The National Beekeepers' Association, and Dr. Copenhaver, of Helena, Mont., as the new vice-president. Dr. Copenhaver was elected president of the Montana State Beekeepers' Association a year ago at the time of its organization. He is an efficient enthusiast, and will well represent the interests of the Northwest. My best wishes go to all the new officers of the National. Serving as an officer of that association will give one an opportunity to do a great deal of work that may be of much value to American beekeeping. The writer is glad to be relieved of the duties of secretary, as his work is such that the office could not be well carried on.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.

Clover apparently has wintered well. With abundance of moisture in ground prospects should be fair for a crop of honey. Markets are well cleaned up, so any crop obtained should move off readily. How the war will affect prices is an uncertain proposition. Practically all food products are going up in price all the time, and honey should hold present prices at least, even if it does not go up in proportion with other staples.

• • •

At this date (April 10th) it is possible to form a fair idea as to how the bees in Ontario have wintered. I have received no reports from cellar winterers; but, judging from letters at hand, I think that outdoor bees have wintered well wherever colonies were very heavy with good stores last fall.

Owing to the unusually warm January, many colonies with young queens and lots of empty comb available, reared brood extensively, with the result that stores were used up fast and the vitality of the bees was used up as well. What little loss we had in our own yards can all be traced to that cause, and this winter has once more demonstrated that while the so-called "winter nest" does no harm in more southern localities, and may even be an advantage (altho I much doubt it) here in Ontario it is never a necessity and is often a decided disadvantage to a colony. Proof abundant along this line is furnished by the fact that every colony contracted and made practically solid last fall by feeding is in simply perfect condition this spring.

• • •

Good advice is given on page 263 as to how to clip a queen's wings. Women are proverbially more handy than men, and I wish Mrs. Allen would try clipping the queen's wings without even catching the queen at all. I am as clumsy as the ordinary man at least, yet in common with a number of others that I know, I annually clip nearly all my queens while on the combs, without catching them and leaving any odor that quite often causes balling even with the most careful management.

Get a pair of small curved surgical shears —buttonhole scissors may do for a lady, but the finger holes are too small for a man's fingers. Find the queen and rest one end of comb she is on, on edge of hive and so manipulate it that the queen is heading upward—many Italian or Carniolan queens will often remain quiet on the comb. Gently and deftly slip the thin-pointed shears under the wings and *clip*—that is all there is to it. If at all nervous, practice on a few drones first and you will be surprised how easily the trick is done. How much you take of the wings is a secondary matter. I like to clip all wings off so that the queen is well marked for future finding. Nothing in the idea that a queen closely clipped is apt to be superseded.

• • •

March was unusually cold here in Ontario this year. During the first 24 days of the month we had a temperature below zero for 14 days. Our bees had no flight till the last three days of the month when conditions were ideal for the bees to have a perfect cleansing flight. After having not seen the north apiary of 250 colonies since last October, I took the train on April 5th and found they had wintered perfectly again. They were covered with snow from early February till March 24th, so is it any wonder I am quite strongly of the opinion that snow rarely hurts bees? Here in York Co. we had a heavy wet snow with wind from southeast that sent snow right into entrances of hives. Two days after it turned very cold, and remained that way for three weeks. I shoveled this wet snow away from the hives in three of the apiaries and left the other one as it was. Parties in Ontario wrote me after the storm in question saying that this snow if left would do harm as it was so wet that, when freezing came, entrances would be frozen and trouble caused. However, when I went to shovel the snow away from this one yard about the last of the month, I found them none the worse as every colony had a space around the entrance where snow had melted. In fact, the bees were better by being shut in, as, during the two weeks previous to the time they were opened, we had bright cold days and large numbers of the bees came out daily in the yards that had clear entrances. Such bees were of course lost in the snow. While the great majority of these bees were no doubt old and about ready to die anyway, the fact I wish to make clear was that under such extreme conditions snow did no harm. With warm weather following the snowstorm, so late as the month of March, then I would not want to leave snow over hives any length of time.

Mention is made on page 1040 of the plant called "Devil's paint-brush," or "orange hawkweed." Judging by what I have seen of this pest when we had an apiary near Brockville, Ont., I do not wonder that they have coupled the ordinary title of his Satanic majesty to this plant. Out there the soil is of a thin limestone formation with much of the land being left for pasture; in fact, much of it is good for nothing else. Well, this "paint-brush" is rapidly crowding out all other vegetation on hundreds of acres, and it is literally good for nothing, as stock will not touch it, and the bees seldom touch it at all—only a very few being noticed on bloom, and they were after pollen. If it yields honey in the locality mentioned by C. L. Williams, I am very much surprised.

• • •

As to clipping queens, page 90, Jan. 15, personally I either want both wings off at one side or else all wings quite closely cropped straight across. The reason? Just because such a queen is more conspicuous, and a single glance, even in a hurry, no matter where the queen is, will tell you that she is clipped. The old argument about clipping one wing first year, another the second, and so on, is out of date, because we do not want to keep queens that long if we can help it. In clipping this spring, if a young queen is found she will be clipped and the hive thus marked. Should I find the queen is already clipped, the colony is marked "old queen," and if things go as I desire during the season, an effort will be made to requeen that colony before fall. That's all the record I need of a queen's age.

• • •

"If you were starting an outyard of 100 colonies how close would you go to a neighbor who had about the same number of bees, and still expect him to be your neighbor?" This is the query asked in the March *Canadian Beekeeper*, and answered by J. A. McKinnon as follows: "If I were starting an outyard I should not want to have that number of colonies any closer than three miles. I think five miles would be better." There may be some exceptional cases to which the above advice might not apply; but in the main most of us will, from a common-sense standpoint, and a common-justice standpoint, most sincerely agree with Mr. McKinnon. Please note that he is considering himself primarily in so advising, and the other fellow simply as a secondary matter. But see here, friend McKinnon; I warn you that you are stepping on a number of people's toes pretty firmly by saying what you have. To the best of my knowledge, I am not personally hit; but that may be solely because of selfish views; for I well know that, if I put a large apiary right up near another large apiary, I shall suffer just as much as the man already established. There is not now, nor do I expect there ever will be, a law on this continent defining just where a man may put an apiary; and so it is one thing to be thankful for in this matter under discussion that one cannot injure another without at same time suffering loss himself.

• • •

Undoubtedly sweet clover yields some honey; in fact, we secured some last year at our Markham yard. But, enthusiastic as I am on bee matters, I have not yet got where I can conscientiously recommend farmers to grow the plant, especially on strong rich clay soils where other hay is grown. Mr. Linton, of Aurora, Ont., gave an instructive paper on sweet-clover growing at one of our conventions, and he has unquestionably made a success of it. But his farm, I understand, is hilly, and soil rather light—in fact, not adapted to growing timothy and clover. He admitted, in the discussion that followed his paper, that growing timothy hay and sweet clover on the same farm would not work.

From an experience on our own place—at least the place we formerly owned—I can well understand the reason. Probably forty years ago my grandfather, who was an enthusiastic beekeeper, sowed a field of white sweet clover and allowed it to go to seed. Every time that field has been seeded to timothy or red clover since then, we have been reminded of the fact. The soil is a very strong clay loam with clay subsoil, and, no matter how well it has been looked after, some seed seems to survive and show up from year to year. Sweet clover is all right for hay; but mixed in with timothy it is worse than useless, as the timothy has to be left so long that, by the time it is ready to cut, the sweet clover is about as good as sticks so far as hay is concerned, and some of it is ripe, leaving seed in the ground.

Another matter that has made Ontario beekeepers slow to boom the plant for honey production is that the honey from this source is undoubtedly very much inferior to that from alsike or white clover. In some cases, especially in Kent and other western counties, well-known producers have told me that they wished there was not a stalk of it within their reach. This is no knock on sweet clover, for I believe it has a future on the farms, especially on light, hilly, or worn-out locations; but it is well to look at these questions from different view-points.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York

DRAWN COMBS IN SECTIONS.

"As the season of 1915 was not the best for honey, I have many sections with combs in them left over from that year. What had I better do with these sections—cut out the combs and clean up the sections, melting the combs for wax, or would you use the whole thing for fire-kindlers as does a beekeeper near me?"

Well, now! that is ahead of any wastefulness I ever heard of except letting the larvæ of the wax-moth destroy the combs. Sections filled with combs are equal to money in the bank. Money is put in the bank for safe keeping, but more especially for the interest it will bring. If these sections of combs are given to the bees at the opening of the clover or basswood harvest, they are not only preserved and filled with honey, but they will give big interest by drawing the bees into the supers before they would otherwise enter them. The very first honey is thus secured from these sources at the very start, which practically insures a good yield to the very end.

I have had years of experience in this matter, and know that when the flow from either clover or basswood opens very suddenly, or, at least, becomes very profuse soon after it opens, neither starters nor full sheets of foundation can begin to compare with sections filled with comb. There is no time in which drawn combs can be used to such good effect as at the rush that comes at the opening of the basswood harvest.

Then these combs are of equal value in getting the bees started at work in the sections at the beginning of the clover harvest, at which time the commencement of the nectar flow is not such as it is with basswood. When honey comes in slowly, the bees have to be coaxed into the sections or else they are very slow in starting, and these sections of comb are the greatest "coaxers" in bee life of anything which can be used. When honey comes with a rush, there is no time for deliberation; the honey must go somewhere, and work will at once be commenced in the sections full of inviting combs.

Then drawn combs are ahead of foundation—at least so far as the amount of honey to be secured is concerned—at any stage of the flow. If we could have all sections filled with nice white combs there is no reason why we cannot get just as much comb honey as extracted. If I could have my choice I should be glad to have all the sections in the first super filled with drawn or partly drawn combs. I have seen seasons in which I was satisfied that a super of partly drawn sections of comb to give a colony at first meant just one more super of finished honey. A colony given a super of combs would have those combs filled, and be started upon a second super of sections filled with foundation by the time a colony given a super filled with only foundation had barely made a start. Where only foundation is used in the first super put on, the bees are slow to make a start, seeming rather to store in the brood-combs below. If a bee emerges from a cell, and the queen doesn't stand ready to put in an egg, it is quite likely to be filled with honey. Give such a colony a super of sections filled with partly drawn combs, and the bees will store honey in these combs just about as readily as in the combs below—a long time before they will draw out foundation in the sections. Combs in the sections relieve the pressure upon the brood-nest. More brood is the result. Yes, and it starts the bees to storing above the brood-nest, and, having made a start, they are sure to continue it unless the flow of nectar nearly or quite stops altogether.

Considering the value of drawn combs, I do not try, to any great extent, to restrict the number of unfinished sections at the end of the season. Supers entirely filled with drawn combs are not only just the thing at the beginning of the white-honey flow, but they are equally good near the close, for I have many times given colonies supers half filled with drawn combs and half filled with foundation near the end of the basswood flow, in which the drawn combs were filled and nicely capped; and the foundation, altho in the center of the super, was left entirely untouched. If I had sufficient drawn combs I would use them exclusively during the white-honey season, at the beginning, middle, and end; and by giving the colonies, after the basswood season is ended, supers of sections filled with foundation at the beginning of the buckwheat flow, the bees will draw out thousands of them during that and the fall flow. This can be extracted, and the combs used the following season. The extracted dark honey may be used for feeding, or it may be sold to those who prefer dark honey. In uncapping, it is well to cut quite deeply, thus reducing the depth of the cells, as when combs are nearly completed and used over again they will not have the smooth new look of those just built, nor of those that were not more than half completed the previous season.

GENERAL CORRESPONDENCE

FREEING SUPERS OF BEES IN OUT-APIARIES

A Quick Plan that does not Require Shaking, Brushing, nor the Use of Bee-escapes

BY J. A. GREEN

One of the most important operations to the beekeeper under any circumstances, but more especially to the one who keeps his bees in out-apiaries, is getting the bees off the honey. The time-honored method of smoking and brushing is still followed by many, especially among producers of extracted honey. Comb honey is likely to be injured by this method, especially when honey is not coming in plentifully, or with some strains of bees which begin to uncap the honey as soon as the hive is disturbed. Most beekeepers now use the bee-escape, which has been one of the most useful inventions ever presented to the beekeeping world. Especially to the keeper of bees in out-apiaries has the bee-escape been invaluable. Except to the one who takes an extracting-outfit to the outyard and shakes or brushes the bees off the combs, the bee-escape has been all but indispensable.

The escape has its drawbacks at all times, particularly for use away from home. First there is the danger that it may become clogged with dead bees, fragments of comb or other refuse, so that the bees cannot leave the super. This may result in nothing worse than having the work to do over again, though I have known bees to be suffocated and honey injured in a super over such an escape. A board containing more than one escape is, of course, much less dangerous.

Then there is the danger of robbers getting into the super and carrying off or damaging the honey. There are few hives or supers which have been in use a number of years (some of mine are thirty years old) that are not liable to have openings or cracks when they are piled one on another. Danger from this source may be avoided to some extent by plastering over all suspicious places with mud after the escape is in place. But even this cannot be depended on long in Colorado, where the continued presence of bees in a hive is necessary to keep joints tight. If we place an escape under a super, being careful not to lift the cover or disturb the sealing, that cover will often begin to crack loose and warp as soon as the bees are out of the super, and in a day or two there will be a crack thru which bees can enter.

One of the worst faults of the bee-escape method for out-apiary use is that two trips are often necessary to take off a lot of honey, as it usually requires from 24 to 48 hours to get all the bees out in this way. Another bad fault for the extracted-honey producer is that the honey above an escape-board becomes too cold to extract well soon after the bees have left it. In Colorado, with our cool nights and very thick honey, bee-escapes are not very practicable for honey to be extracted, unless the honey is to be warmed up after taking home. The wire-cloth escape-boards that have been recommended for this do not suffice to keep the honey warm here.

Lastly, there is the danger that thieves who have learned what a bee-escape is for may carry off the honey over escapes before the owner gets back to it.

I am going to tell you of a better plan than using bee-escapes; but first I want to recite a little ancient history. When John Reese first made public in GLEANINGS, some years ago, his invention of the bee-escape, it attracted little attention. I think it was a year or more afterward when, noticing that no further mention of it had been made, I wrote an article for GLEANINGS, calling the attention of beekeepers to the fact that they were overlooking an invention that I had found practical and valuable. A short time after this was published, I met, in Chicago, James Heddon, whom old-timers will remember as one of the brightest men who ever kept bees. Said he to me, "Green, you ought never to have written that article. Reese's description of his bee-escape fell perfectly flat. I don't suppose there were a dozen men in the United States who ever tried it, and none of them said anything about it. It is a big thing; but such things ought to be kept in the hands of the specialists, who can appreciate their value. You have stirred it up again, and it will likely come into common use, which will be bad for the professional."

I will not discuss now his position in regard to new ideas, which is not altogether

uncommon. I have always been ready to share anything I knew with any one it would help, though I have sometimes been slow in making public a thing that has not been thoroly tested or perfected.

His prediction in regard to my article was apparently correct, for it renewed interest in the bee-escapes. Various improvements were made, and the original inventor was soon lost sight of. I know of no work on bees that gives him credit for his important invention. A letter from him appeared in GLEANINGS a year or two ago, in which he gave a hint of a better method of getting bees off the combs than the bee-escape; but this hint, like the original description of the bee-escape, seems to have fallen on stony ground. So I am going to "do it again," and try to wake some of you up to an appreciation of the better way, for there is a better way, for many of you at least.

I keep all, or nearly all, of my bees in out-apiaries, producing both comb and extracted honey and hauling the honey home to extract. For the last three years the bee-escape with me has been a discarded implement, an antiquated device that is used only occasionally. I drive into an outyard with my auto truck, and in ten or fifteen minutes can begin loading into the truck supers of honey perfectly freed from bees, without shaking, brushing, or any previous preparation. I do this by using the carbolized-cloth method. This was frequently mentioned in the bee-journals several years ago, and appears to have had considerable vogue in England, tho if it has ever been used to any great extent in this country, we have never heard of it. Properly used, I find it one of the greatest time and labor savers for the beekeeper who runs out-apiaries.

Tear any ordinary cotton cloth into pieces a little larger each way than the top of the hive. To work to advantage you will need four or five of these, and will probably find more unnecessary. Put these into a two-quart Mason fruit-jar, which makes a good thing in which to keep them. Pour over them a ten-per-cent solution of carbolic acid, one part of pure acid to nine parts of water, just enough of the solution to keep them about as wet as they can be without dripping. Any surplus can be squeezed back into the jar. The exact proportions of acid and water are not very material, and some other proportions may be better under some circumstances; but this is what I have generally used and found satisfactory.

Go to the hive from which you wish to take honey. Remove the cover, lay the carbolized cloth over the frames, and replace the cover or throw something else over the cloth to prevent drying and waste of material. This is all that is necessary, tho I find it advantageous in practice to use smoke in connection, puffing a good volume of it into the top of the super, to get the bees to running before the carbolized cloth is laid on. Go to another hive and repeat the operation. By the time you have four or five thus prepared, the first super should be ready to come off. Put the cloth from this hive on another, and take off super number two, using its cloth as before. This makes a continuous operation, taking off supers as fast as you can prepare the hives and handle the supers. If you have to spend much time in hunting for supers that are ready to come off, you will not need as many cloths, as it takes only a few minutes ordinarily for the combined smoke and odor to drive the bees down, and the cloths should not be left on longer than necessary. Too strong a solution or a cloth left on too long may taint the honey somewhat. The odor passes off soon when the combs are exposed to the air, so that it does no harm to comb honey. You must be very careful with extracted honey that you expect to extract soon. When extracted soon after removal from the hives I have sometimes noticed the carbolic flavor in the honey drained from the cappings. I never take off honey before it is sealed. Probably unsealed honey would more readily acquire a taint that might be permanent if the honey was not exposed to the air.

Use nothing but the best refined acid. I tried crude acid, thinking that the stronger flavor would be more effective. It was, but the disagreeable tarry odor remained on the combs much longer. Carbolic acid is very high now, on account of the war; but, even so, I think it pays well to use it. Keep your cloths away from the air as much as possible. Put them into the jar as soon as you are through using them. Add a little more solution; seal them up and they are ready for use the next time you want them.

The method works much better with comb-honey supers and shallow extracting-supers than on deeper ones, tho I have used it with many of Langstroth depth. If you have more than one super to remove from a hive it is better to take off the top one as soon as the bees are out of it, leaving the cloth for a short time on the one below. Do not loosen the super from the hive before the bees are out. The draft of air from the crevices thus made interferes with the action of the carbolized air from above.

The method does not work well when the bees are sluggish from cool weather. There is one great objection to the plan, and it is

this that has made me hesitate so long about saying anything about it. This is, that the knowledge of it puts a very effective tool into the hands of those who might be dishonestly inclined. A thief who understands his business could get away with a great deal of honey in a short time, and could remove the honey from the hives by night almost as well as by day. So if you use this plan, let me advise you to keep it strictly to yourself. Do not use it when visitors are around. The outfit needed is small. Keep it out of sight when not in use.

Grand Junction, Colo.

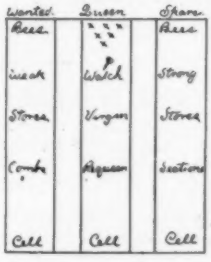
CARING FOR 1000 COLONIES OF BEES IN IMPERIAL VALLEY

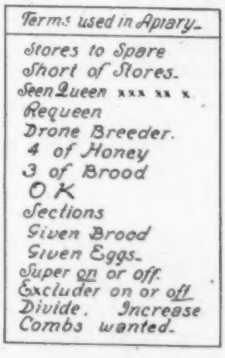
BY JOSEPH GRAY

To see four carloads of honey piled up in one lot, the product of one 1000-colony beekeeper, speaks well for the system here outlined. Here in the Imperial Valley our flora is chiefly alfalfa bloom. The desert and banks of the canal system yield less every year from the cottonwood, willows, wild hollyhock, greasewood, arrow-weed, etc. Bermuda grass, price of hay, the reluctance of ranchers to irrigate and harvest in July and August when the themometer is 110 in the shade; the putting in of barley along old alfalfa pastures for barley hay in the spring; the changing of crops to cotton, milo maize, feterita, melons, canteloupes, all tend to cut down the long honey harvest for which this valley has been noted.

Eight apiaries of over 100 colonies each, stretching away over ten to twelve miles, means considerable figuring for simplicity of handling. Two men in a Ford or other small car can do all the work of the apiaries early in the season, weeding out the dead, caring for the combs, and equalizing stores. It does not pay here to buy sugar to feed. The feeding is all done by exchange of combs. Only one size of frame is used—the standard Langstroth. It matters little if it is plain or spaced, thick or thin top-bar, wide or narrow. The same applies to hives 8, 9, or 10 frame. All are in use in 1000 colonies. Later in the season two teams of two men each are needed, and a boss to follow the work, requeening, drawing honey, getting it hauled, cans and cases, besides the wax question. A market-wagon carries what is needed for the day. One man operates the yard while the lesser experienced man uncaps and extracts. The combs of honey are collected in a long five-foot box mounted on a skeleton wheelbarrow covered with four wet sacks. When it is run into the extracting-house the two men lift the box on two upturned supers and place an empty box of combs on the wheelbarrow. One of the easiest methods to handle cappings is a wet sack on the bottom of the uncapping-tank. The cappings after draining are lifted out bodily and carried to the solar extractor.

Many are the devices used to make each hive an open book. Fig. 1 shows a hive-cover with three columns—a "wanted" column on the left; spare column on the right; center column, queen. A little reflection will give you the positions. *Right* is abundance; *left* is want; *center* is queen life; a small blue nail driven into any of these positions gives the index to the colony. For instance, a nail is shown in Figure 1 at "watch." The boss finds the notation "26-4, drone-layer," hence the index at "watch." Another may be indexed "Requeen." This calls attention to a possible record—"26-4, queenless." Again, the index at "Queen" may reveal, in date column, "26-4, saw queen XXX." That gives the apiarist's opinion of the queen as seen at that date. The list of terms covers nearly every phase of beework.

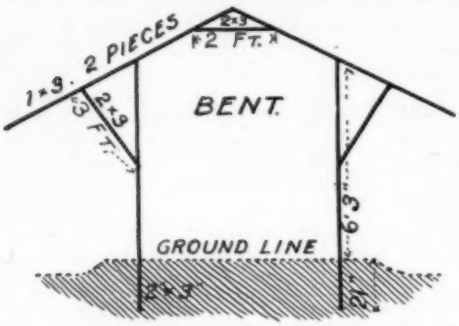




A location here costs about $25.00 per year rent. The bees must be put 100 feet from the fence line, and 300 feet from the roadway. One must consider the possibility of the bees getting irrigated as well as the land. As we have no rain, the roadway for the wheelbarrow will need to be irrigated for a barrow will not run in loose sand. We secured a location for one year, or may be two. A longer time is not advisable, because next year, instead of alfalfa we might see a mile of cantaloupes, or a couple of miles of corn or cotton; and, though it will cost you $50.00 to move, it pays to shift

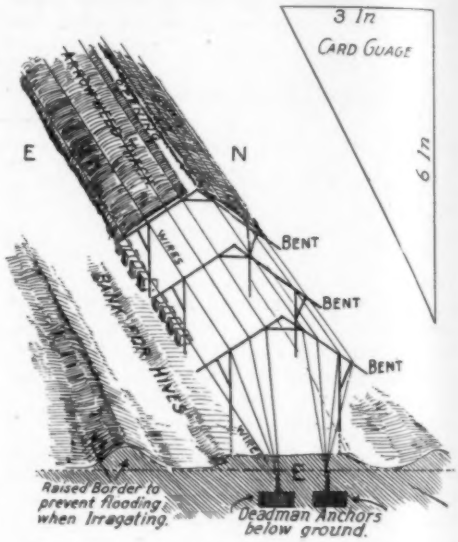
such an apiary. If as the editor suggests a new Imperial Valley opens out by way of Mexico, then the old-time alfalfa crops without Bermuda grass will prevail once more.

Having selected our site we proceed to plow and then "V" two banks on which to set the hives. These are run east and west, with the extracting-house at the east end.



Around the whole a border is plowed and "V'd" to keep out the water when the land is irrigated.

Next comes the building of the "ramada," the necessary shed or shelter. For this, 14 bents will be required, as shown in Fig. 2. Ramadas for stock are built with flat roofs; but for bees the roof should come low down at the sides with a six-inch streak of light down the center. With the ramada set east to west, and the west end covered in, no hive can get the full force of the sun. The bents are made of 2 x 3 lumber, and 1 x 3 lumber for the roof. To get an accurate gauge to cut your lumber by, use a temporary card gauge. Mark with your square three inches along one side and six inches along the right angle. The result will be a measure that will answer for every cut.



Having our bents made and up we proceed to stretch six wires anchored to the deadmen. At each end arrow-weed is cut and the roof thatched. Light wires run along and are fastened to the under wires. This completes a very cool shade for so hot a country.

Heber, Cal.

A SUMMARY OF THE SEASON'S TRIPS TO OUT-APIARIES

BY J. W. SCHLENKER

I use the eight-frame dovetailed hive, and think it is best for comb-honey production. I make my first visit as soon as bees can fly well in the spring, and at this visit determine which colonies, if any, are short of stores. These I feed with full combs of honey saved over from last season for this purpose.

The next visit is made during fruit-bloom, at which time I remove paper coverings and clip all queens not previously clipped. Colonies showing so strong that they are likely to be crowded before May 1 are given another hive-body containing drawn combs, which are usually on hand at this time, from hives that have been fed, and from those that have died. These are set on top, and the queen given liberty to lay as much as she pleases.

About May 1 I make another visit, starting to haul supers to the yard, and putting them on colonies showing sufficient strength. This is very important, because, if bees become crowded at this season, they will get the swarming fever and be much harder to handle.

After the honey begins to come in freely I aim to visit each yard once a week to put on supers, and determine whether any colonies contemplate swarming. This is done by tipping the hives back and blowing smoke over the bottoms of the frames. If any queen-cells are found these colonies are treated by shaking bees off all but the two outside frames, and filling the vacant space with frames of foundation, then returning supers and adding others as needed. From time to time I remove those that are filled. Colonies so treated rarely attempt to swarm again that season. The six brood-frames

thus taken may be used to build up weak colonies, if any are present, or to make increase. I usually pile them up on the new stand with contracted entrance about three stories high, and give a ripe queen-cell. This cell hatches before the young bees get to storing honey, and the young queen will destroy all other queen-cells, thereby eliminating all danger of swarming. The weather at this time of year is warm enough so that there is no danger of chilling brood, and young bees hatch fast enough, together with those few not shaken off, to care for the young larvæ. These three-story hives are usually so crowded with honey by fall that both the brood and queen will be found in the lower story. The upper stories can then be removed and used for feeding next spring.

Colonies that were given upper stories during fruit-bloom are divided as soon as super work gets well started. Most of the honey and capped brood will be found upstairs in these hives. I shake most of the bees off in front of the lower story, to which I have added two supers in place of the upper story; and after making sure that the queen is in the lower story I treat the upper story the same as other shaken frames.

When I think the honey-flow is half over I stop shaking bees, because those colonies that go half way through the honey-flow without attempting to swarm can be kept in the supers by destroying queen-cells once a week if any appear. A great many colonies will not attempt to swarm at all if properly handled, and those are the ones that usually make the best yields. Great care must be taken along the latter part of the honey-flow in order to get as many sections completed as possible; and to avoid being caught with a lot of unfinished supers, this is entirely a matter of judgment of the bee-keeper, and applied to the home yard as well as the outyard.

After the white-honey flow is over I remove the filled supers and give at least one empty super to each hive to catch any unexpected surplus. If there is a fall flow, supers are added as needed. There isn't often much swarming at this time; and as I do my requeening in the fall I can control what there is without trouble.

About Nov. 1 I remove all supers, and prepare bees for winter by contracting entrances to keep out mice, and by placing about a dozen sheets of newspaper over hives, and covering all with waterproof building-paper folded to shed water, tying with stout string to hold all in place. This has proven better than cellar wintering for me, to say nothing of the labor saved.

Ankeny, Iowa.

[Mr. Schlenker and his auto are shown on the cover of this number.—ED.]

A NON-SWARMING SYSTEM THAT GETS RESULTS

BY J. M. BUCHANAN

For several years I have been testing out a plan for preventing swarming at outyards; and as I have had such uniform success with it I feel that I can recommend the plan to others who are situated in a similar location, or working under like conditions. Our main honey-flows are from locust and white and alsike clover, and usually begin about May 1, clover closely following the locust, and continuing about two months. There is generally a light aster flow in the fall. My bees are run principally for extracted honey, but with some slight modifications this plan will give good results in comb-honey yards.

Most of the spring work is done in the fall—that is, we see that the colonies breed up strong during September and October so as to go into winter with a large force of young bees. If there is not a flow sufficient to cause such breeding, the bees should be fed thin syrup or diluted honey every few days for a month or so. This is a very important factor in the next season's honey crop. A colony that will not breed up at all had better be broken up, and the combs and stores used elsewhere, as it will hardly pay to winter such a colony.

In October the excluders are removed, and all supers are taken off, except one, leaving the bees the run of two full-depth stories. (I am using both eight and ten frame hives.) There should be at least 25 pounds of sealed honey in the combs, some of which may be in both stories. They are now ready for winter.

No other protection is given, except that in a very cold winter the entrances are reduced with blocks. They should now be left entirely alone until April, when they are looked through hurriedly to see that all hives have stores and queens. No stimulative feeding or spreading of the brood is done.

A few days before the main flow begins, we go through the hives and put the queen

One of J. M. Buchanan's out-apiaries in winter, each colony being in a two-story hive.

and most of the unsealed brood into the lower story of the hive, with two or three empty combs. From three to five frames of the oldest brood are placed in the center of the upper story, over a queen-excluder, and the rest of the combs placed on each side of the brood. At this time we generally find fifteen to twenty frames fairly well filled with brood. Should we find eggs in queen-cells, most of the brood is placed in the upper story, and what brood is left in the lower story is alternated with empty combs or foundation, all queen-cells being removed.

A week or ten days later we look thru the upper stories and destroy any queen-cells that are found—no use to look for cells below the excluder, as there won't be any there if a good job was done when the queen was "put down." Some of the brood in the upper stories is used in nuclei for increase. At this time all colonies that are storing well are given another super of empty combs next to the excluder. We go over the yards about once a week and give supers to those in need, as it is important that they do not feel crowded.

The hives are tiered up, and the honey allowed to ripen well before it is removed. In taking off the honey, which is usually done about the end of the flow, bee-escapes are used. Before these are put on we drive down most of the bees with a cloth wet with crude carbolic acid, which is laid over the frames for a minute or two. The extracting is done at the outyards, in a honey-house or in a tent, and the wet combs put back on the hives after sunset.

From two hundred colonies worked on this system we have had less than one per cent of swarming for two years, while our neighbors report fifty to a hundred per cent. I find the bees winter better, and build up faster and stronger in two stories than in one, and require much less attention in the spring, and they will get the honey if there is any to be had.

My bees are a good strain of Italians, mostly three-band, and only the poorest colonies are requeened each season. The rest supersede as they see fit. One factor that may have an important bearing on the swarming problem is the rearing of a large number of drones. I keep this down by allowing only worker comb in the brood-chambers, and using full sheets of foundation.

The illustration shows one of my out-apiaries in winter, with the bees in two-story hives. The trees in the picture are locust.

Franklin, Tenn.

IT TAKES NO MORE TRIPS TO OPERATE OUTYARDS FROM A CENTRAL EXTRACTING-PLANT

BY A. B. MANN

I believe in the central extracting-plant system, for I think it is by far the safest and most economical plan. Forget the portable or the separate plant at each yard, and put up a central extracting-plant, and install a friction-drive power extractor, and be happy. I care not whether you use team or auto truck, it pays just the same. Of course, an auto truck is much to be preferred; but you can get along with horses. Leave your wagon a few rods from the hives and out of the bees' line of flight, and keep all honey well covered after it is taken from the hives, and you are not liable to have trouble.

It takes no more trips to operate your outyard from a central plant than it does to extract at the yard; but it does take a few more supers. Load on the wagon your extra supers, as many as you will need, and go to your outyard toward evening. Take off the hives the full supers, and in their places put supers with empty combs or full sheets of foundation, as the case may be, on these the bee-escapes, and finally the supers of honey which you wish to take off. In the morning go back and get your honey. You will find the bees all out of the supers providing you use good, clean, double Porter escapes. (I have used them all, and the Porter double escape is the only one that has given entire satisfaction and cleared the supers of bees.) Load your supers, together with the escapes, and haul them home and extract where everything is handy. The work can be done in less time, and in a more satisfactory manner, than is possible at an outyard without too great a cost for equipment; and as soon as honey is extracted you are ready for another yard.

The interior of the honey-house you arrange to suit yourself. I use an eight-frame extractor and a tank 1 foot deep, 2 feet wide, and 6 feet long, standing on a lower level so honey runs from the extractor thru the strainer and into the tank, and then a hole cut in the floor, and boxed off underneath to hold the scale. So you see the honey goes directly from the extractor to the can, where it is weighed without any effort of mine, and then it is labeled and packed ready for shipment. If your time is worth anything, and you have enough bees to warrant it, by all means get a power extractor. It will pay you, as one man can accomplish as much as two with a small extractor turned by hand, and do a cleaner job of it.

I also believe that the foul-brood situation is more easily controlled by the use of a central plant than the portable or separate plant. Where there is American foul brood it is necessary that the extracting-room be absolutely bee-tight, thus preventing robbing, as it is an established fact that the honey from a diseased colony is contaminated, and thus it may easily be seen what disastrous results may follow carelessness and robbing. After the bees leave your honey-house, and even assuming they did not get any contaminated honey there, their robbing instinct has been stirred up and they will look around for more of the precious sweet; and if you have any weak colonies they are pretty apt to find it; and if you have foul brood you are sure to have weak colonies. By operating a central plant you are in better position to keep it up in shape, neat and tidy, and free from robbers. One thing I would suggest to those unfortunate enough to have American foul brood is to have a small extractor for extracting the honey from combs of diseased colonies only, and never place those combs over healthy colonies. If you extract them in the same extractor with the rest, even tho you keep the combs separate, more or less of the good combs are sure to become contaminated by coming in contact with the baskets of the extractor after the diseased combs have been extracted. If you are careless about handling the honey when you have American foul brood you can hardly expect to be able to eradicate the disease. Shake and work all you have a mind to, and be careless about extracting and putting combs back, and you will still have the disease. Better still is it to run every diseased colony for comb honey and take no chance with extracted. I believe you will all find that it is a great deal easier to get rid of the disease while running for comb honey than extracted, and that is one of the reasons why some succeed in stamping out the disease while others meet with flat failures.

With European foul brood we have a different proposition. The bacilli are found in the brood and bees themselves, also the queen, not in the honey, and therefore this disease requires different care and treatment; but in both cases the prevention of robbing is of paramount importance—yes, an absolute necessity. Therefore contract the entrances to weak colonies and do all in your power to prevent robbing.

Regarding prevention of swarming before

the queen has the brood-nest full, and before she begins to feel cramped for room—while the weather is favorable, and the bees are finding nectar enough to keep the queen laying—remove from the brood-chamber one or two combs, according to the strength of the colony, and pick those containing the most sealed brood, and, after cutting out all queen-cells, place them in the center of the super of empty combs and then set them back on the hive over an excluder. Care must be taken to see that the queen is not on the combs removed; and in place of the combs removed give frames with drawnout comb or full sheets of foundation, as the case may be. This gives the queen room for laying, and the brood in the upper story will soon hatch, and the bees will begin storing in them. In about eight or ten days go thru the super and remove queen-cells if any have been started; and if the queen has things pretty well filled up again, then repeat the operation. Give the queen plenty of room, also the bees an abundance of room for storing, but don't go to extremes. Watch them and use judgment. Also give them plenty of ventilation, especially those in the sun and those in close places where the air has not a chance to circulate freely. The hive raised up on to ⅞-in. blocks in front, and a small entrance at top, suits me best. With the metal top and inner cover this can be accomplished easily. Slide the inner cover back a bee-space, and place two small blocks in front of it on the corners of the super for the outer cover to rest on. This will hold it up at the forward end, and give a bee-space, besides sheltering the opening from rain and sun; but you must weight the cover down or it may blow off. Placing ⅞-inch blocks under the four corners may be all right, but it does not suit me. I don't like to work around a hive that is open right in front of where I always stand when working with them. The scuffing around of my feet seems to irritate them. I prefer to have the rear of a hive on the bottom-board.

Fillmore Co., Minn.

FORTY YEARS OF COMB-HONEY PRODUCTION IN OUT-APIARIES

BY J. E. CRANE

I have been running out-apiaries for comb honey for nearly forty years, and most of this time I have had several such yards.

Much of one's success will depend on doing everything when it should be done. Supers must be filled with sections with starters in place. All hives should be put in readiness during cold weather, or at least before it is time to work with bees. As soon as warm weather comes so it is safe to open hives, every yard should be looked over, and all put in shape for brood-rearing. If one colony is found short of honey, honey should be given it—a solid comb from a hive that can spare it, or from those that have been kept over in our storerooms. Weak colonies should be shoved up on to three or four combs with a tight division-board; or, if none is at hand, a solid comb of honey next to them.

Next will come the clipping of the queen's wings. Apple-blossom time is the best for this work, as the fewest bees are then in the hive, and there is little danger from robbing at this time. Two men should go thru a yard of eighty or one hundred hives in a day, besides doing any other work necessary. Clipping queens is very necessary when running outyards for comb honey, as such yards are much more liable to swarm than when run for extracted honey. When I first began I thought it necessary to hire a man for each yard during swarming time; but I have found it much more economical to clip our queens and look after all the yards myself.

Where many bees are kept in one place, some swarms are likely to issue during our absence; but with queens' wings clipped they will return to their own or some other hive—sometimes two or more to the same hive. When we find them we divide them, giving the bees to those hives most needing them, or use them for making new colonies with brood we have taken from other hives to discourage swarming.

A small building, if not absolutely necessary, is a great convenience for storing supers, combs, and honey, and we have at all our yards a building eight by ten, or usually ten by thirteen feet, for this purpose.

At the approach of clover bloom we give all colonies supers with sections filled with full sheets of thin foundation, or all colonies strong enough to begin work in them promptly. During the spring we do not aim to visit outyards more than once in two weeks; but with the blooming of white and alsike clover we may expect preparations for swarming, and each yard should be visited once in eight or nine days, not only to control swarming but to put on or take

off supers of honey. At each visit we aim to give each colony all the super room it will require until the next visit. We go over the yard by course, examine each hive, and usually remove every super from hives that have not swarmed, and open them that we may know their exact condition as to whether they are preparing to swarm or not. If we find larvæ in queen-cells it is time to begin by removing part or all of their brood, or, instead, their queen. There appear to be two main causes for bees swarming—old or failing queens, and a surplus of brood. If the queen is old it is better to remove her at once and cut out all sealed queen-cells, and, eight days later, again cut queen-cells, and, eight days later, give a virgin queen. It is better to discover such queens before any preparation is made for swarming, and remove them, giving a young queen in place of them; but we cannot always do this.

In regard to the removal of brood, it is much more effective when first preparations are made by a colony for swarming; for the longer it goes after they begin to prepare to swarm, the harder to get it out of their little heads, until sometimes they will swarm any way, even if you rob them of all their brood.

It is time more than wasted to try to prevent a colony that has an old queen from swarming by removing brood; for you may remove all of it and give dry combs in their place, and it is more than probable she will lay a few eggs in a patch as large as the palm of your hand, and queen-cells will be promptly started, and swarming results.

Bees as a rule work in supers much better when no preparation is being made for swarming, and we should forestall any desire on the part of the bees by giving plenty of super room and abundant ventilation as well as shade. There is doubtless a great difference in different strains of bees as well as in seasons. Some years bees are much more given to swarming than in other years. Much will also depend on the skill of the apiarist. I believe I have had quite as good success by spending one day in eight to a yard, with one man to assist me, as when I employed a man for every yard. Taking off honey or supers at an outyard is a very simple matter since we have used bee-escape boards.

We have sometimes run one or two yards for extracted honey, but have thought the work quite as hard as when run for comb honey. Perhaps we did not understand how as well. It might seem like pretty hard work to lift supers and open 75 or more hives in a day, but we have seemed to get along fairly well.

For four or five outyards we have got along with one horse and an express wagon, altho an auto truck would be better in some ways. One experienced active beeman with a good assistant can take care of a yard of eighty to one hundred colonies in a day, leaving the other six or seven days for other yards.

There is, doubtless, a difference of opinion as to whether we should work with bees on Sunday; but I don't believe it pays when it can be avoided. There is a lot of sound sense in the statement by that old Hebrew preacher that "They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run and not be weary, they shall walk and not faint." How many times during the swarming season have I felt completely worn out by Saturday night, when the rest of the following day, with church services, and mingling with pleasant people, with all thought of bees removed from me, I have gone to my work on Monday morning with strength renewed and the whole world smiling for me.

Middlebury, Vt.

A HUNDRED COLONIES TO THE APIARY

BY D. L. WOODWARD

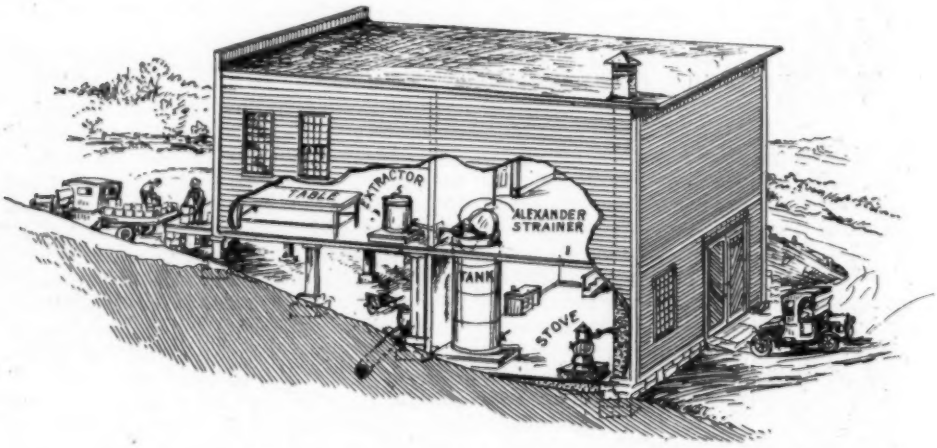
It is some years since my father, A. E. Woodward, and I started our first outapiary. It is also some years since my father retired from the bee business on account of ill health, and, like some other veteran beekeepers, took up his winter residence in Bradentown, Florida.

Since then I have been conducting the business alone. I aim to keep about three hundred colonies, which are temporarily located in two outyards and the home yard. Before the time of the automobile I extracted my honey for several years at the outyards, but decided that it was less work to move the honey home to extract than it was to do it at the outyards. Another thing to take into consideration is the fact that we can be at home more, and can enjoy a warm dinner in place of a cold lunch at noon.

I still have a honey-house at one outyard which I would not know how to dispense with as it is very convenient to have a place to store supplies, etc.; then, too, we always have a shelter from storms.

I have been using an auto in my business for the past five years, and would not be without one again. Five years ago I purchased a large seven-passenger car, second-hand, and converted it into a truck for hauling my bees and honey to and from the outyards, and for marketing my honey. I found it unsatisfactory, as it was not geared right for a truck, and was too expensive to operate for my light running about to outyards, etc., so I sold it and bought a smaller car for my outyard work and marketing, and went back to the old reliable horse for my heavy hauling.

This year I have ordered a Stewart truck of 1500 pounds capacity, and will again try my luck, but this time with a car built for the business. Touring cars are not built for trucks, and any one who invests his money in a second-hand car of this type expecting to do trucking with it might as well save his money. I shall keep my small car for the light work the same as before.



At the outyards as well as the home yard we always leave the honey on the hive until the close of the flow, raising the supers as they become filled and two-thirds capped, and placing the super of empty combs underneath; then when we are ready to start extracting we can make a business of it. Going thru the yard and sorting out the filled combs once a week or so, as some recommend, takes too much time for outyards.

When the honey is ready to come off we go to the yard; and while one man raises the super the other inserts the escape underneath. If there is more than one super to come off we generally place the escape under one at a time. In this way we go thru the whole yard at one time. In twenty-four hours the bees will have left the super if the combs are well capped over; if not, it may take a longer time.

All honey is hauled home from the outyards and tiered up in the honey-house before a comb is extracted. The honey-house is built on a slight sidehill. The upper end of the house is raised about three feet, and supported by piers, while the other end is two stories high. The roof is nearly flat, and covered with a composition roofing which draws the sun's rays and makes the temperature very warm in the honey-house.

In front we have a bridge level with the honey-house door, and about the height of the auto platform from the ground. This makes it very handy for unloading and loading.

In the room below we have a stove, wax-press, scales, etc., and a 3000-pound-capacity honey-tank. This tank was made for us by Sears, Roebuck & Co., at the small cost of $7.10. It is made of galvanized iron, and is three feet in diameter and six feet high. It extends about six inches thru the ceiling into the room above. The extractor is arranged near by, and the honey is run by gravity thru a galvanized tube into an Alexander strainer hung over the tank.

I have read that galvanized iron would darken white honey, but have yet to discover that it does so. We use several smaller tanks, all made of galvanized iron, and a bottling outfit made of the same material. Of course we never leave the honey in the large tank for any length of time unless it is the last extracting, which is sometimes left for several days. Ordinarily as soon as the tank is full we stop extracting for half a day or long enough to draw off the honey from the tank. Understand, this honey is all well ripened on the hive, and can be put

up for market at once with safety. All combs that are not capped are sorted out, and kept until last, to be extracted by themselves. This unripe honey is put into our smaller galvanized tanks and left to ripen.

My bees are all moved home from the outyards in the fall, and wintered in our house cellar. In the spring they are all set out in the home yard, where they remain until about the middle of May, when two hundred or thereabout are moved to the outyards. All weak or diseased colonies are left at the home yard, where they can be watched and taken care of much better than at the outyard.

About July 20 or just as the buckwheat is coming into bloom, we again move all our bees, including the home yard, to the mountains for the buckwheat flow, there being no buckwheat to speak of raised in the valleys below.

It is a beautiful sight to stand upon some peak in the Helderberg Mountains where you can look from three to eight miles in every direction upon hundreds of acres of buckwheat in full bloom. I have inspected fields of buckwheat located less than a mile from my 300 colonies, and found only now and then a bee, showing that, when there is plenty of pasture, they do not go far from home in pursuit of nectar.

Last season I had one freak colony that would not work on buckwheat, but stored all their honey from late sweet clover. When we took this honey off we were surprised to see all nicely capped combs of white honey with occasionally a cell of buckwheat near the outside. This colony was given all empty combs after being moved to the buckwheat location, just the same as the rest.

In locating an out-apiary there are several things to take into consideration. There should be a stream or pond of water near by—the closer the better, as it will save the bees valuable time. I try to keep my bees busy every minute that it is possible for them to work, by locating them close to the flora and water. A southern exposure and protection from high winds is advisable on the north and west if possible; and the yard should be located where the bees will not be a nuisance to neighbors who may be working on land adjacent to the apiary. I have always tried to locate my outyards near a house, as I do not think the bees are as likely to be molested as when they are off in some out-of-the-way place. Then, too, it is very nice if you can locate this apiary close to the highway; but this can seldom be done.

One of my yards is located within twenty yards of the highway, but is separated from it by a hedge of brush ten feet high, and the road is five or six feet below the ground where the bees stand. On the north there is a bank twenty feet high, and on the west there is a wood; on the south a creek with large trees on either side. Taking everything into consideration, it is an ideal spot for an outyard.

I believe that most beekeepers set their hives too close together, and in too systematic rows. It all looks very pretty, but it causes a lot of drifting and mixing, and I fully believe that it is the main reason why it is so difficult to exterminate bee diseases, mainly foul brood. On account of lack of space I set my bees in rows and in pairs generally; and for several years I have noticed that, where a colony had foul brood, and was not treated at once, generally the next colony to it on one side or both would develop the disease some time during the season. Last season I had one colony that was slightly affected with foul brood, on the end of the last row in my home yard. I thought they would clean up of their own accord when the honey-flow started, so I did not treat them until I found that the five colonies next in the row were infected. I have found that the surest way to exterminate foul brood is to shake the bees as soon as the disease is discovered.

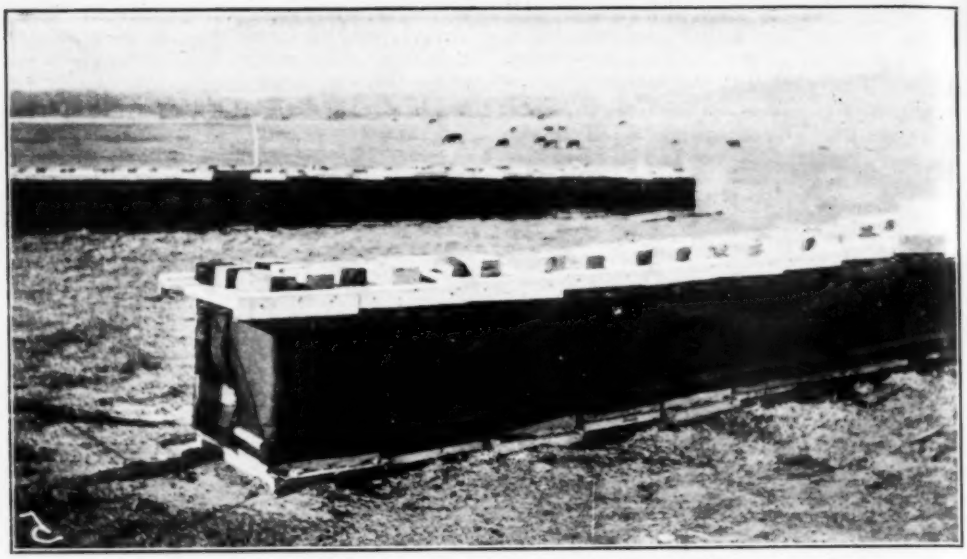
About one hundred colonies is all that can be successfully operated in one location in this locality. I am acquainted with beekeepers who insist on overstocking their locality by keeping several hundred colonies in one apiary, and consequently get a very small average per colony; whereas if they would divide them into several yards of about one hundred each they would realize a handsome profit for the extra work that would be required to manipulate them.

Clarksville, N. Y.

PREVENTING SWARMING BY PUTTING BROOD ABOVE AN EXCLUDER

BY DANIEL DANIELSEN

I run five outyards for extracted honey, and I prevent swarming by raising brood over queen-excluders and leaving the queen below on empty combs as often as she gets the hive full of brood. Of course the bees raise cells above the excluders; but that seems to make no difference so far as swarming is concerned.



One of Daniel Danielson's outyards showing protection of roofing paper.

Sometimes I make an entrance in the back part between the stories for ventilation, and they thus get a laying queen in the upper story. If so, I put the old queen on the new stand and put the young queen down, and that ends all swarming.

I don't see how any one can run outyards for comb honey unless he visits and overhauls them at least once a week. To keep bees from swarming, plenty of room is needed in the brood-nest and super, and that is a hard problem in comb honey.

Brush, Col.

PRODUCING COMB HONEY IN OUT-APIARIES

Disease Broke up the Celebrated Let-alone System

BY ALLEN LATHAM

The statement on page 218, that "Allen Latham holds the imaginary cup for operating bees on the let-alone plan" needs a correction in tense. Put *held* for *holds* and the truth will be better observed. Before foul brood struck this locality this plan of keeping bees was carried on for several years with marked success. One year in particular I produced a honey crop which netted me over $60 per day for time actually on the job. This was done with bees having a strong admixture of black blood. European foul brood came, and at once difficulties piled up. Italians will swarm where the blacks will work contentedly; but the blacks succumb to the disease. It was absolutely essential that yellow blood be put into the place of the black, but this was done at great expense in the economy of the let-alone system.

Formerly only about one-fifth of swarming took place, and one could well afford to run bees on the plan, allowing in advance a loss of one-fifth the crop. With the Italians the swarming jumped right up to ninety or more per cent. To prevent this the apiaries had to be visited several times prior to and during the honey-flow. Even with much added labor the crop was cut down and the cost of operation tremendously run up.

It begins to look here as if the disease had spent its force. If I can again go on with black blood I may regain the lost imaginary cup. In the mean time I am at work upon the problem of succeeding with yellow stock. If I ever solve the problem I will announce the fact.

The foregoing paragraphs concern the production of chunk and strained honey. During the last two years, seeing that I had to make visits to my out-apiaries frequently, I thought I would try section-honey production. My efforts have been fairly successful, and I will give some suggestions as to swarm control. There is nothing new in

my methods, but a résumé may be of service to those interested in this subject.

One can control swarming to the extent of having no swarms run away by cell-cutting and wing-clipping. This means a weekly visit and a general overhauling of practically every colony in the apiary. There is a lot of labor in this, but it is labor well paid for if one can find no better way. The chief objection, aside from the labor, to this method is that colonies which get the swarming fever badly will not finish up sections. They will continue to store honey, but will not do a finished job. This can be offset in part by placing their partly filled supers upon a colony which is doing finished work, and giving the unruly colony fresh supers. Careful manipulation in a reasonably good season will result in a fair percentage of completed sections, but one has to look out or he will have too large a percentage of cull sections.

Another plan which gives much better results is to prevent the swarming fever from starting in. Now don't get excited! I have no infallible plan. Early in the season, before the colonies are too crowded, cage queen or remove her. Substitute a ripe queen-cell, either immediately in a protecting-cage, or, three days later, unprotected. Colonies thus treated will sometimes later acquire the swarming fever, but most of them will not; and if the operation is well timed the crop is but little affected thru the temporary absence of a queen.

If one does not care to carry out this plan in wholesale (and who does not find queens that he cannot bring himself to displace?) then put the plan into operation only with such colonies as start cells. It will work pretty well here; but once in a while the young queen will lead out a rousing swarm just as soon as she has laid a few eggs.

If the last-mentioned plan is adopted let the apiarist forestall a lot of the queen-displacing by requeening the previous season. It has been the experience of the writer that queens reared in September rarely lead out swarms the following season. (I use this expression, "lead out swarms," entirely aware that the queen leads only in the sense that she is a controlling influence.) For many years I was able to state that I had never had a swarm issue which was headed by a September queen. But this last season broke down all precedents. September queens, young queens, old queens which had already been out once, etc., were embroiled in a fever of swarming that rivaled the war-fever in Europe.

Whatever plan one follows, therefore, in the production of section honey in outapiaries, he is sure to encounter difficulties. He cannot, as in the production of extracted honey, give unlimited room, for if he does he will get an unmarketable crop. But he must give room or he will not get any crop. Aside from the problem of the swarming he has this other great problem, and in his wise discretion in the matter of supplying supers rests his success in getting a good profitable crop to market.

Norwichtown, Ct.

DON'T TRY TO MANAGE OUTYARDS WITHOUT AN AUTOMOBILE

BY R. F. WIXON

I am producing comb honey in outyards as a main crop, and extracted honey more as a by-product. Comb honey appeals to me because it has a ready sale. Until three years ago I did not use an extractor, and thus did not see the possibilities open to the producer of good ripe extracted honey.

Last spring 56 colonies of bees, spring count, were increased to 110 colonies during the season. These were in three yards—two outyards and one home yard of about 25 colonies. This season (1916) I wish to increase the total number to winter to 200. These colonies will be away from home, and will be run exclusively for fancy comb honey. The ten-frame standard hive, factory-built, with the 4¼ x 1⅞-inch sections, split on three sides (Hand method) makes a hive and super combination that gives excellent satisfaction and good results. As I have used the split sections only one season it is not quite fair to say whether they are exactly ideal or not; but so far as last season was concerned they gave good satisfaction and stood a large amount of rough handling, both before and after being filled by the bees.

As soon as it is safe to open hives in the spring, the colonies are examined to determine if there are enough stores, and to learn the exact strength, so as to be prepared to deal with each colony wisely. When settled weather comes, sometimes between April 20 and May 1, the queens are clipped, and the smallest frame of brood in the brood-nest is transferred so it comes between two larger frames, or, in other words, one of the outside frames of brood becomes an inside one. The second week the same operation is repeated; but on the following

or third week an empty comb is placed in the center of the brood-nest, as this happens now in more settled weather; and as the cluster of bees is larger, a little spreading does not seem to hurt the prosperity of the colony. This method of spreading is used until the hives become full of brood, and then some combs are raised into an upper story over an excluder. All colonies are given upper stories as soon as their strength will permit, even if their brood has not reached the number of ten frames (I sometimes have colonies make 30 to 40 pounds of extracted honey before June 1). As the main flow from clover does not come on until the first week in June, or later, I find that this extra room keeps the colonies from getting the swarming fever, and I am also the gainer, often by many pounds of extracted honey that perhaps otherwise would never have been gathered. The colonies in the yard that have an upper story are shaken on clean empty combs or foundation with one frame of capped brood, and the proper amount of super room given at once. Two or three supers, one fitted with four to eight baits, are given to each shaken colony. By this method one has a large amount of brood on hand. This is saved by placing it over weak colonies till it is capped; then it can be used for increase, or left on the weak hives until the combs are filled with honey.

In the Altay yard there were 23 hives of brood from 35 colonies. Six weak hives cared for the brood. In ten days these hives became so strong that extra entrances had to be provided in order to prevent the bees from hanging on the outside of the hive. During the white-honey flow the combs were filled with honey, and also an extra set for each six hives. As soon as the brood had all hatched, these bees were shaken from the combs into one hive-body, and four to eight supers given to each hive. I cannot remember exactly, but I know one made 336 sections before the buckwheat flow, and the other five filled between four and six supers each.

Colonies worked in this way produce fancy comb, the finest that can be made. They do not even offer to swarm as long as plenty of super room is given. Every colony is inspected once a week to determine if honey is fit to remove, if plenty of extra room is ahead of bees, and last, but not least, to see if any colony contracts the swarming impulse. If one should, the cells are broken down, room and more ventilation provided; and by the following week, if they still insist on swarming (as they did in 1915), all brood is removed, which in most cases cures.

The empty supers are placed under the partly filled ones at the beginning of the flow, and on top of all the supers as the flow nears the end. Bee-escapes are used exclusively, paying well for the extra trip required.

Increase is made by the Alexander plan in some seasons; but the three-frame nuclei, made and transferred by auto to another yard, have the advantage in that all the bees stay.

Hardly any attempt is made at queen-rearing. Good queens can be bought in large lots at reasonable rates from experienced men. If one gives his colonies extra good care, there is not much time left to rear queens. Men who have reared queens for years can send out better queens than persons of only a few years' experience. Colonies are requeened every two years unless queens prove poor.

Colonies are numbered, and a record of each colony kept. The records help to control the swarming. They give the age of queens, but do not give yield of honey per colony except where colonies prove poor and the queens require changing. The sales for the season give the average of honey per colony.

The crop last season was, in round figures, 5000 sections of comb and 3000 pounds of extracted honey from 56 hives, spring count, and an increase to 110 colonies. I believe that these bees could have been made to average an even 200 lbs. per colony if I had known then what I know now.

Don't try to manage outyards without an automobile.

Dundee, N. Y.

OUT-APIARIES IN RHODE ISLAND

BY ARTHUR C. MILLER

Out-apiaries are not a joy to the "bee fusser," nor are they a royal road to wealth for him. "Let-alone" systems must be used for best results, all things considered.

All of my apiaries are now "out-apiaries," and are from eight to twenty-five miles from home. The nearest thing to a home yard is the one eight miles away, and it is where I raise my queens and do most of my experimenting. I have three yards all together totaling about two hundred colonies, and I have an oversight of two

other yards of a score of colonies each; and during any spare time I have I act as bee inspector for the state. Those are my side lines, my vocation being banking. So far I have had sufficient time to eat, sleep, and be merry.

Early in my attempts at "wholesome neglect" of the bees I ran into the swarming trouble, and it overshadowed all the others. I tried all the orthodox remedies—found most of them "patent medicines" in which the cure was worse than the disease, so "threw physic to the dogs," and worked out a treatment of my own. Now I have almost forgotten how a swarm looks or sounds, and my eyesight remains good and my ear keen.

The formula is a simple one, and can be compounded by any beekeeper who will take the necessary pains. The ingredients are good combs with room enough for them, young queens, ample entrance, and a shaded hive.

To elucidate: *Good combs.* Do you know what they are? In my yards they are all built on foundation in wired frames, and every inch of them is available for brood—except when the workers get there first and put in pollen or honey; but there are no stretched or distorted cells, and drone comb only in the lower half of the frame next to the entrance. (Entrance is at long side of the hive.)

There are ten combs in each hive, and hives all have 14¾ inches clear, inside width. Combs are kept away from the sides of the hive by three good bee-spaces, and that insures brood in outer surfaces of outer combs when the queen needs the room. The half-comb of drone at the outside means a minimum number of drones commensurate with wants of the bees and the labor of the beekeeper. The bees are bound to have some drones; and if you fail to allow them room for raising them they will cut down worker-cells and put in drone anywhere that suits their fancy. Personally I dislike their fancies, so I allow them the minimum space for the purpose and put it where I want it, and that is at the front where the queen occupies it late and leaves it early. Drones may not be a direct cause of the swarming fever; in fact, they may be only a symptom (choose for yourself), but certainly there is more swarming where there is an excess of drones, and less where there are few; wherefore I choose to assume that they are more or less direct disturbers of the peace, and permit as few as the bees will acquiesce in.

Room enough! Hump! If you don't know what that is you had better give up the business and leave your room for a better man. But perhaps you are a well-meaning youngster, and anxious to know, so I'll tell you that room enough means a little more than the hive manufacturers have usually deemed necessary (I almost said *thought* necessary). It means enough room so that you can offset the combs from the hive sides sufficiently for one layer of bees to be on the comb, one layer on the hive side, and another layer promenading between. The promenaders keep the others from becoming too somnolent.

Young queens—not so young as to be frivolous, but young enough to be vigorous hustlers. Mine are raised and introduced in August and September. Why? Well, 'tis a rather long story, and it took me a whole lot longer to find out that queens reared and used then were best suited for the ends sought; but they seem to be so. In some other localities some other time might be better, but not here. Such queens, in the first place, put the colonies in bang-up shape for winter, and follow it up by presenting me with a fine score for the honey-flow, and make wholly good by sticking to business till after the flow and the season for all swarming foolishness is past. My queens are not only all of the same age, but daughters of the same mother, so all colonies are very closely alike, and a look at one or two tells the story of all. If any one in the yard is out of condition, entrance appearances tell it. With such queens there is no spring stimulating, no transposing of brood, no fussing nonsense of any kind. Annual requeening *pays*. Be the reasons what they may, I find I cannot omit the young-queen factor from my reckoning.

Ample entrance. For me, I find an entrance one inch high by eighteen long is ample. You see it is six inches longer than the standard entrance to a ten-frame hive, and also six inches nearer to the most remote part of the hive. Use has proved it good.

Shade. Something to prevent the sun from frying the brood—double covers, telescope covers, trees, any old thing to keep the sun off during the hottest part of the day—that is, during the honey-flow. At other seasons I prefer a goodly amount of hotness.

The conditions under which the foregoing combination has made good are these: The ordinary northeastern United States climate, so far as heat and wind and "weather" are concerned, but tempered, and often abused, by cool to cold nights, often with fog and sometimes high winds. The main flow comes in July; but sometimes we get three or even four "surplus flows," as locust

the last of May, sumac early to mid-July; clethra, buttonbush, and clematis the last of July and early August, and goldenrod in August and September. This makes a noise like a bee paradise, but 'tisn't. We have a little something coming in much of the time, except when a drouth butts in now and then, and we almost never have a "flood" of honey. Bees seldom get such "a load on" that they have to be helped into the hive. They are more temperate hereabout.

The other problems are transportation of supplies and crop, and getting to and from the yards. Trolley express goes right by one yard, while freights plus farm teams cover the others. Trolley or train carries me to one yard and train and auto to the others. All yards are run for both comb and extracted honey.

Comb honey is eased at the yard, and generally shipped in by auto. Extracted honey is put into cans, and goes to town by the farm team. A little money, a little honey, and a little jollity is all that is needed.

A room in some one of the buildings at each place serves all purposes of preparation, extracting, etc.

Supers are put on when it suits my convenience. To be sure, the bees now and then gnaw the foundation if there chances to be a dearth before the flow starts; but what's the odds when they make it all good again as soon as there is something coming in?

Most of the honey is removed by use of escapes. When I cannot go down the night before, I have some one at each of the more remote yards whom I can usually get to do it for me.

And it all sounds so simple and so easy! Well, it is; but every step is planned out ahead, every kind of short cut is used, and no operation is followed which can be omitted. In other words, the whole thing is a machine with every wheel doing its duty in its turn, and not a useless cog in it.

Pardon me. I must hedge a little. I do do quite a bit of experimenting, but it is all in attempts to find other short cuts.

Did you ask which factor I considered most important in swarm prevention? All of them. The young queen comes first, perhaps; combs second, and the other things bunched. You see those good combs properly spaced give the queen all needed room, and the supers on ahead of time give the bees loafing room before the flow and storage room during it. If honey happens to pour in before any comb is ready in the sections, and brood combs are pretty well filled by the queen, the bees just pop it into every empty cell having only eggs (I have never seen them submerge larvæ). This is removed and ripened during the night, and then goes above (where combs by then are growing fast), for they are pretty careful not to hamper the work of that young queen, and the temporary honey bath never harms the eggs.

The secret of success in handling outapiaries here or anywhere is preparation, material and mental. If you cannot work out the second, never mind the first.

Providence, R. I.

CONTROL BUT DO NOT PREVENT SWARMS IN OUTYARDS

Hive Swarms on Starters and Put Full Sheets of Foundation in the Supers

BY F. W. LESSER

It is easy enough to prevent swarming in outyards run for comb honey if we do not consider the work or loss of honey involved; but after trying all sorts of non-swarming schemes for years I have come to the conclusion that it pays much better to direct the swarming impulse into proper channels than to try to prevent it entirely.

The dequeening or caging method will prevent swarming, but it requires a lot of expert labor, and the results in storing are far from satisfactory.

The plan of allowing the bees to fill an upper story full of honey, and, when the flow is well on, shaking the bees on to it and putting boxes on is not to be recommended, as Italian bees will not carry up the honey satisfactorily, and what is carried up will be of poor quality. Also, this plan requires good judgment as to the proper time to put on the boxes, and makes a lot of work at a critical time.

Any plan which requires an extra set of brood-combs is bad, as it increases the investment, risk of disease, and makes a lot of work to keep the combs the rest of the year. I know of no greater nuisance to the comb-honey man than a lot of empty combs to keep from moth, disease, robbers, mice, etc., for eight or ten months of the year when not needed under the sections.

After trying about everything the plan I like best is "shook" swarming, which I learned in Colorado fifteen years ago. I believe it is the best plan to use wherever there is foul brood. Those Colorado fellows

not only know how to produce fine comb honey, but they know how to produce it at the lowest possible cost. That prince of comb-honey producers, Mr. M. A. Gill, his wife, and one helper have managed as many as 1000 colonies, producing 70,000 lbs. of comb honey in one season by the shook-swarm method, and the plan works as well here as there.

Every one knows the plan, but I will give a few details which we have found good. Clip the queens early. Equalize the brood in fruit-bloom to keep early swarming down. Put supers with a few baits in them on before the white flow begins. Better be ten days ahead of time than one day late. Put a shade-board on all colonies in the sun, and raise the hive up an inch from the bottom-board a little before the swarming season. Make a date, before swarming begins, for visiting each yard once a week to examine all colonies for cells. If in a hurry, we tip the hive back and look between the frames for cells. We may miss one occasionally; but as the queens are clipped they will not get away before the next trip, when we shall probably discover the cells.

We have tried to discourage swarming by destroying cells; but as a rule we have found that it does not pay at this regular swarming period. When the bees of a colony once get eggs and larvæ in queen-cells they have gone too far to change their mind in a hurry, and the best thing to do is to satisfy their desire. The queen has eased up on egg-production; the workers have begun to secrete an abundance of wax; there is honey in the fields, and everything is as nature intended for the making of a new home. Don't spoil all this preparation by compelling them to forget it by cutting cells, caging queens, dequeening, etc. Take advantage of this natural impulse and let them get the fever out of their system by working it out, which they will do if given an empty brood-chamber. We might as well try to get eggs from a sitting hen as to try to get good work from bees with the swarming fever. Give them an empty home, and they will work like beavers.

Don't make the mistake of hiving on combs or full sheets of foundation if you desire to get as much fancy comb honey as possible. With starters in the frames and full sheets in the sections, the inducement to store is practically all in the sections. With full sheets of foundation in the frames the inducement is largely in the brood-chamber. With combs in the frames the inducement is about all in the brood-chamber, with a consequent crowding of the queen, and poor work in the sections.

When eggs and larvæ are found in queen-cells, shake on starters on the old stand, and set the old hive at one side or corner of the new. Don't shake too many bees at the first shake. In two or three days contract the swarm to the capacity of six L. frames, and put on the sections from the old colony. In six or seven days after shaking, shake one-half or one-third of the remaining bees from the old hive in front of the swarm, and move the old hive to another part of the yard to build up for winter. There will be no after-swarming, as the first queen out will destroy all remaining cells. This colony will usually build up in fine shape for winter, and, having a young queen, will be one of the best the next spring. Before the fall flow, the swarm's brood-nest should be increased to eight L. frames capacity to allow them to build up for winter, and to prevent late swarming which might happen if left on six frames. But use full sheets of foundation in the frames at this time.

There will not be much drone comb built in the six frames of starters if the queen is good and plenty of room is given in the boxes. A little sorting and patching in the fall or the next spring will make everything all right. Combs built from starters are much superior to many of the combs built from full sheets of foundation, as there is no sagging of cells, and brood will be reared up to the top-bar, which is quite an item in comb-honey production.

As European foul brood is now pretty well scattered, most of us must keep Italians; and as they dislike to leave the brood-chamber we must plan to force them into the supers by using small hives and hiving on a contracted brood-chamber.

I know beekeepers who have had fair success in producing comb honey with black bees; but after they Italianized, they made miserable failures by the same methods. The cause is large brood-chambers and hiving in full-sized hives on full sheets of foundation in the frames.

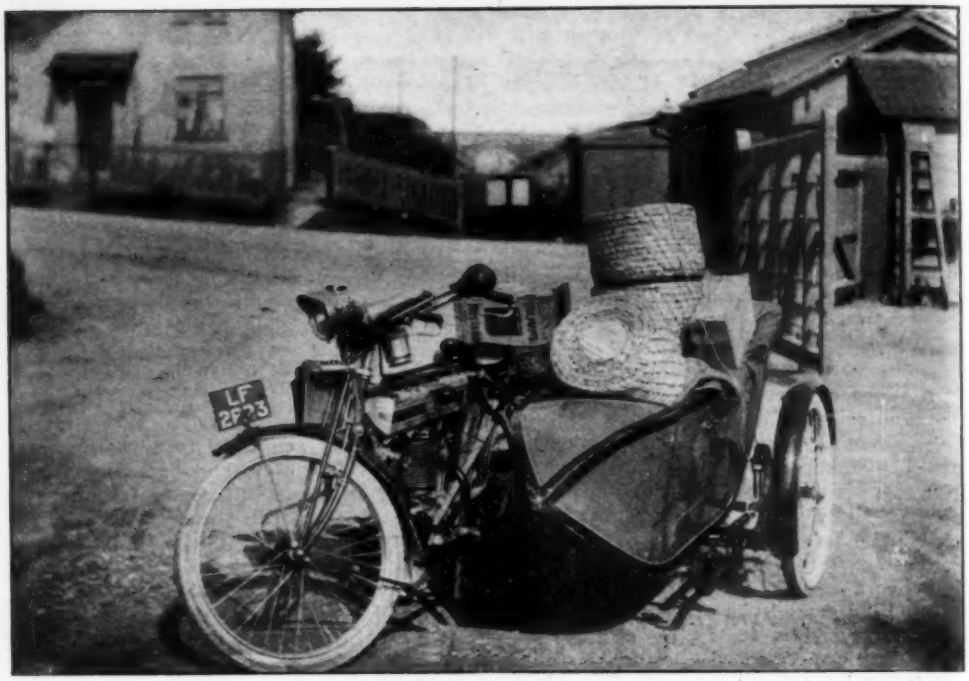
DOES THE CENTRAL EXTRACTING-PLANT SPREAD FOUL BROOD?

From my experience I would say that the danger is great. There is always more or less drip on the wagon or auto, and robbers are always around when loading or unloading; and with ordinary help the combs from different yards are sure to get mixed.

Some of the worst scrapes I have been in with horses have been in hauling full combs home to extract.

We have also used a tent for extracting; but hereafter we want a bee-tight house at each yard.

East Syracuse, N. Y.



Motor cycle for outyard work.

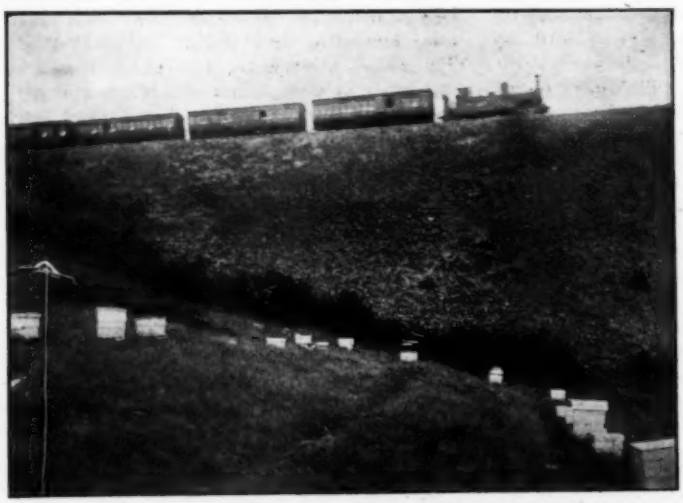
THE MOTOR CYCLE FOR THE BEE BUSINESS

BY A. H. BOWEN.

The picture shows the machine I have been running this summer for the conveyance of bees, hives, and supplies to and from the out-apiaries.

The machine is a single-cylinder, 1913, 3½ h.-p. Triumph, to which is attached a roomy Canoelet side car. It is fitted with a free engine-clutch and three-speed gear, which obviates the necessity of stopping the engine in traffic, and gives greater power on hills.

Four eight-frame colonies in traveling crates can be hauled at one trip in the side car, or 150 lbs. of honey in 28-lb. tins may be easily carried.



Part of a Cotswold apiary with a natural windbreak.

Fragile articles such as skeps of bees with young tender combs, or crates of full sections can be conveyed with very little jar; and, indeed, the machine is now indispensable to out-apiary management. By the speedometer the machine has been run 5500 miles this season, and it was driven every day thru the finest weather. The greater part of this

milage was done with the side car loaded.

I have had no punctures, and only two stoppages worth recording—once with a choked petrol pipe, and once by a faulty plug. Economically driven at speeds averaging 12 to 16 miles an hour, the expenditure for fuel and wear and tear are reduced to a minimum. The total cost of maintenance, including two new tires and a belt was a fraction over half a shilling per mile, or 14 cents.

A Canoelet side car offers several advantages over the bare side-carrier I have often seen illustrated. No tying on of goods is necessary; and when starting out on a bee-tour one can load up with small articles such as smoker, carbolic cloth, knives, some frames of foundation, a super or two, a roll of sections, and a package of booklets and pamphlets to be distributed at each stopping-place. All can be easily found when wanted, and there is no risk of the articles being shaken off when traveling along a rough country road. Outfits of this kind are very popular in England among people who can not afford to own a car. The first expense and cost of maintenance is not so heavy; and with care it will give long and lasting service. It is particularly well suited to the needs of the present-day business beekeeper, and my own machine has stood the test far better than I first anticipated.

Cheltenham, England.

SOME EXPERIENCES WITH A MOTORCYCLE

BY RAY C. WILCOX

In the spring of 1914 I was engaged as helper by a large apiarist of Tompkins County, some 35 miles from my home, where I had an apiary of 30 colonies. The bees were in good condition, and it was my desire to work them to the best of my ability, both for extracted honey and increase. Owing to the fact that the railroad connections between my home town and that of my employer were indirect, and that my bees were nearly two miles from the railroad station, I realized that the expense of working my bees would be high in time and car fare.

I had been interested in motor cycles, and, after some consideration, I decided that one was just what was needed to work my little apiary to the best advantage and give me maximum amount of time for my employer. I finally bought a twin-cylinder machine of a popular make. It was a second-hand affair, but was in fine order, and, as motor cycles go, I believe I got my money's worth. Indeed, while I had the machine the more important parts of the motor never troubled me.

But from the first I was disappointed with my purchase. Even after learning to handle the motor, which I did with comparative ease, I found that it greatly preferred smooth roads. To be sure, one could ride over rough roads, but it was a most shaky experience, and very hard on all concerned —except the road, perhaps. I have often wondered at the durability of motor cycles. On the whole these machines are certainly well made to stand up under the usage they receive. However, I soon found that there is a knack about picking one's way; and after six months' experience I could ride with comparative comfort and at fair speed over roads which, at first, would have well nigh unseated me.

But while rough roads were unpleasant they were passed over with ease as compared with muddy ones. Indeed, it was the helplessness of the machine in the mud that was most disappointing, for I found it almost impossible to get my heavy machine over wet slippery roads. It not unfrequently happened that a rain came up while I was at my apiary with the motor, and the road would become so slippery as to be practically impassable for a motor cycle. That meant loss of time, or returning to work by rail, which meant that I must make the next visit to the beeyard in the same way. The same conditions often necessitated a trip to my yard by train. Of course these were not the usual conditions, but they were often enough so to be very annoying. At the close of the season I figured that I had saved $19.00 in car fare, and possibly as much more in time, at a cost of $16.00 maintenance on machine, to say nothing of depreciation, which, when figured in, left me considerably behind on my investment. Some of the wear and tear, however, was due to pleasure riding, for which the machine was used a good deal.

During the season of 1915 I lived some 10 miles from my apiary. The motor cycle proved a great help during the whole summer, but was especially convenient because of the excessive swarming, so common last season. Muddy roads were often bothersome as in the previous season, but the distance was easily within driving range for my horse, altho the time required was fully four times that needed to make a trip with

the machine. It was often necessary to use the horse any way, because I had to take quite a load. In fact, the incapacity of the motor cycle to carry a load is really the greatest objection to the machine for the beekeeper's use. If one has only a single conveyance it is important that he be able to haul considerable load.

Motor cycles with side car attached have been recommended; but even then the capacity is small and the outfit is impracticable for bad roads. Besides, unless in a level country it needs a very high-powered and expensive machine to handle a side car. In a hilly country a one-speed motor cycle with two cylinders cannot manage a side car efficiently except under the most favorable conditions. To be sure, two and three speed high-powered machines may be had, but the price rivals that of a Ford automobile, while their efficiency is scarcely to be compared with such a staunch little car as the Ford.

As a pleasure machine the motor cycle stands in a class by itself, and, tho it may scarcely sound businesslike, I am free to say that I do not begrudge what mine has cost me for pleasure. As an investment I am sure it has not paid; but if one can afford one as a luxury it will often be found convenient for making quick trips.

West Danby, N. Y.

ONE WHO SUCCEEDS WITH A HOME YARD NOT ALWAYS SUCCESSFUL WITH OUTYARDS

BY F. P. QUINBY

My experience in California, Nevada, and Illinois, has taught me that the following points cannot be ignored if the maximum results are desired from outyards.

One of the first items to be considered in establishing an out-apiary is this: Have you knowledge of the conditions that surround the locality? and do you realize that your outyard may differ to a wide extent from your home yard, and as such require different management? The foregoing is but one of a large number of questions that might be put to the "small" beekeeper who is desirous of establishing an outyard, but it is an item of vital importance.

The same rule applies to the management of outyards as to the man who, having been successful in business on a small scale, desires to branch out into a larger field, in which undertaking he often meets with failure on account of the lack of training or inability to cope with larger situations.

One of the more difficult problems which the beginner must solve after he has established an outyard or two is how to control the swarming with as few visits to the outyard as possible. The system which I have followed for the past four years in Illinois is as follows: I introduce a strong young laying queen into each colony just before the fall flow begins, on account of which my colonies go into winter quarters well provided for; i. e., with a young queen, young bees, plenty of good stores, and the fall honey is all removed from the hives.

As soon as I find there is plenty of bloom I confine the colonies, which are wintered in two-story chaff hives, down to the first story, taking out all the surplus honey by lifting the brood-nest, which is by this time well started, and is usually in the top story, and putting it into the lower part of the hive. I put only those combs below that have brood or honey in them, always placing a card of honey next to the brood-nest proper. The rest of the hive is filled with empty combs, and the frames are well covered up. An ideal condition is thus created; i. e., I have a young vigorous queen, a brood-nest that is not clogged up with candied honey or old pollen, and the season is advanced so that, with the pollen plentiful, and enough new honey coming in, the queen will do her best with the force she has at this time, and good results cannot help being obtained.

I utilize the rest of the honey which is found in the hives as follows: I place one of the combs over the cluster after a piece as large as the size of my hand has been uncapped with the knife, and every other day repeat this until the comb is used up, at which time I start another comb in the same manner. By so doing, my old honey is entirely consumed by the time of the main flow, and has been turned into brood, which is the result most desired by beekeepers at this time of the year. I am well aware that a good many beekeepers find their bees are without stores a good while before the flow begins, but I consider it poor management. With a good young queen at the head of a colony at the opening of the season, keeping the colony compact and warm, and using the old honey as stated above, it is not long before I can start with my second brood-nest. I consider this the secret of swarm control and strong colonies.

When I have accomplished the results as outlined, it is necessary to make only one visit every ten days to my outyards, and all I do at such time until the flow is on is to shift the brood-nest, which is at the bottom, to the top, and *vice versa*. As soon as the flow is well started I put my queen-excluders on the colonies running for extracted honey, the same being placed between the two brood-nests, making sure that the queen is below. I also change the brood-nests, putting all brood about to hatch into the lower hives, so as to give the queen room to lay more, in this way keeping the colony in shape for the sweet-clover flow.

I put all my first supers for comb honey with top and bottom starters between the two brood-nests of the same colony—this with the intention of keeping on for forty-eight hours. In this way my sections are started nicely, and they are not discolored. At the end of the time stated I remove the upper brood-nest with brood; also two frames from below. I also add my second comb-honey supers at this time, for the reason that my colonies are invariably strong enough for this to be done. I now make only one visit during the week to my outyards, and this for the purpose of putting on supers and shipping honey until the close of the season.

Western Springs, Ill.

AN AUTO TRAILER FOR THE OUT-APIARY

BY J. P. MOORE

Unlike most out-apiaries, mine answers three purposes. First, I form about 200 nuclei from it; second, it takes care of my new swarms at home, and prevents my home yard from being overstocked; third, it produces a good supply of honey each year. For many years I have dreaded the long nine-mile trip to this out-apiary, not only for the ride in a heavy farm wagon, but the danger which I underwent with two powerful horses which I drove; for had a bee stung either, I should have been kicked to death or dragged by this high-spirited team if I had been caught unawares. No horse, no matter how gentle, likes to have bees alight on his back and sink their sting into him. From four to six of these trips had to be made each year for forming nuclei, and two for bringing home the honey, and each trip was like a beating for me.

In 1914 I purchased a Hupmobile touring-car, and, with the aid of the running-gear of an old carriage, I fashioned an auto-trailer, the sides and bottom of which were slatted to allow the circulation of plenty of air. An iron Y brace was then put in place of the shafts, which in turn was clamped to the axle of the machine, and I was then ready for my experiment. My son-in-law and assistant, Mr. J. E. Jordan, acted as brakeman on the trailer to save the brakes on the machine in descending long grades. One blast from the auto horn was the signal to apply brakes, and two to release them. The result was, we were able to drive down between the rows of hives without the slightest fear from stings to our steel horse, and the trip was made in less than half the time than with the team.

Our trip is now a pleasure, and very few hills are so steep that I have to resort to low, even with 48 nuclei in the trailer. Bees stand the trip better, and I have experienced no broken-down combs. The automobile has now really replaced the horse in my business. Mr. Jordan sometimes makes the trip up to introduce queens on his Indian motor cycle which has a side car attached. The side car, being pretty large, will accommodate all kinds of supplies and tools.

Morgan, Ky.

VISITING AN OUT-APIARY ONLY FOUR TIMES A YEAR

BY S. G. CROCKER, JR.

One year I ran an outyard with but four visits, and did not have a swarm. The first and greatest swarm preventive is young queens, so all my hives were requeened late in the fall. Another great help is drawn combs, of which I had a good supply the year referred to.

I am not going to give a set rule by which we can have an outyard run on four visits with no swarming. In the first place, the kind of season, the weather, the honey-flow, and the breeding of queens from non-swarming colonies, control swarming to a great extent. If we have a rainy spell at the beginning of the honey-flow when the sun does come out I have noticed swarming will invariably follow.

I think we all agree that the greatest

cause of swarming is a congested brood-chamber. When the queen lays in every available cell she feels she has done all she can for the colony, and goes out to start a new colony. That is why putting on comb-supers will not prevent swarming. I have had colonies in the spring whose queen had 16 Hoffman frames of brood and eggs in all stages of development. Now, how could we expect to hold a queen like that in an eight-frame hive? We must expand the brood-chamber to keep down swarming, either by removing the capped brood, shake swarming, or putting capped brood in an upper story away from the brood-nest.

To describe my visits: I made my first trip when my bees at home showed they needed super room by the clustering-out of the strongest colonies. On visiting the out-yard I equalized my colonies by exchanging capped brood for eggs or empty comb, leaving the bees on the capped brood, and using a little smoke. I have no trouble from fighting. I then got a full-depth body for each colony, and, removing five empty combs, exchanged them with five combs of capped brood, putting the capped brood in the upper story and giving the queen access to both stories; then put a shallow super on top as a kind of safety-valve in case the flow proves heavy before the next visit.

On the second visit I followed the same plan as at first, raising capped brood and honey, and inserting empty body or bodies below, according to needs of each individual colony. One can find the queens at this time, put them on new combs in the lower body, and keep them there with queen-excluders; but I have never thought it paid for time required to find the queens.

The third visit I made about ten days after the spring flow was over, removing all honey on each hive, putting all brood in one or two bodies according to the amount, and hauled honey home to extract.

The fourth visit was after the fall flow, which is not heavy in this locality, and rarely affords any surplus. If a few colonies had surplus I removed it and put it on colonies short of stores; if not, I fed sugar. I then reduced the entrances, and packed the bees for winter.

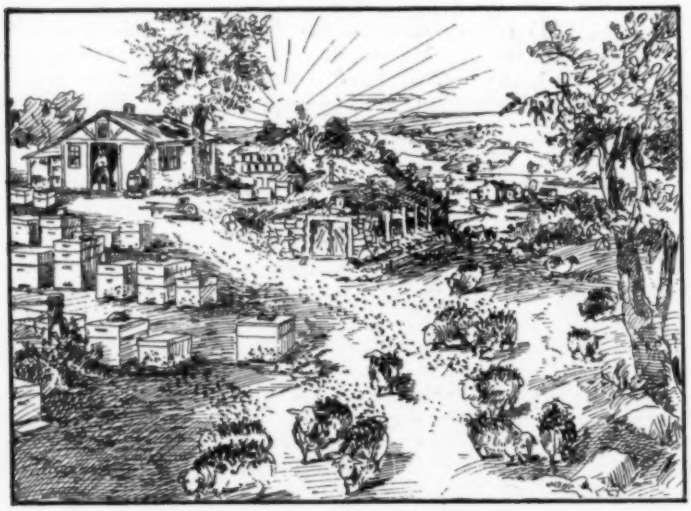
Baltimore, Md.

WITH SHEEP AND BEES AND HONEY BOB SURELY MADE SOME MONEY

BY REV. J. M. LEWIS

Bob was a shepherd who pastured twenty sheep. They browsed around the meadow where the grass was long and deep; but when the leaves had fallen and November winds were chill, out in the open meadow they could not get their fill. So Bob he kindly put them in a well-protected shed, with hay enough to feed them in the mow up overhead. But the seed kept sifting down, and it lodged amidst their wool, and there it safely stayed till the April moon was full.

And then went those muttons out in the rain, you know, and in less than twenty days the seed began to grow; and it grew and kept on growing like the bean in fairy song, till the grass upon their backs was at least two inches long. And Bob, he expected that, later in the year, the fragrant clover blossoms would certainly appear.



The moral of this tale is clear to every eye—that by judicious management (if a person cares to try), he may with little trouble when the days are warm and sunny, have the sheep supply the nectar for the bees to make the honey.

North Westport, Mass.

Heads of Grain from Different Fields

THE BACK-LOT BUZZER.

A pound of honey is better than a pound of beefsteak. Sammy Cucumber says he doesn't care if it is. Sam's a vegetarian.

The Winter in Montana.

I went into the winter with eleven colonies, two of which were second swarms, and none too strong. They were all wintered out of doors; and as we had the severest winter ever known in this section of the state—not the coldest weather, but the longest continuous spell of cold weather, getting as low as 40 degrees—I was very anxious about the bees, as my experience covers only a few years.

About the 10th of February the weather broke, and the bees came out for their first flight since before Christmas. Every colony showed signs of life and considerable activity, and all but one were strong. Of this cold spell I may say that, for three weeks or more, the temperature was away below zero every night, and for much of the time did not get above zero during the twenty-four hours. Another thing about this spell of weather, which I feared might have a bad effect upon the bees, was that, after about ten days of extreme cold, the weather moderated one day, and the next day the temperature was 53 above zero in the afternoon, and within twelve hours thereafter it again fell to 20 below, and the extreme cold continued for another ten days or more; but all of this severe weather seems to have had little effect upon the bees.

I winter in double hives, patterned after the Root hive—one of them is a Root; but the outer casing is considerably larger than the Root double hive—large enough for four inches of filling around the brood-nest. In this space I put three thicknesses of thick cellular box material next to the outer walls and bottom of the outer case, and the rest of the space is filled with chopped alfalfa, and over the top about six inches of leaves.

Last summer was a poor honey season here, and my bees were wintered mostly upon syrup. I gave them all that they would store. The system is not what might be called "beekeeping for profit," but I keep the bees mainly for the pleasure they afford, and, incidentally, to have my own honey.

The experiences of the past winter have convinced me that a bee-cellar is not a necessity in this climate, however it may be within the arctic circle or some other cold section of the earth.

Rudolf von Tobel.

Lewistown, Mont., March 10.

Massachusetts Society of Beekeepers

The fifth of the six regular meetings of the years 1915 and 1916 was held in the Williams room in the Ford Building, Boston, Saturday evening, March 18. Miss Dorothy Q. Wright, of Lowell, was the speaker. Being a practical beekeeper she was very interesting, and held the attention of the large gathering for about two hours. She had a display at an exhibition in Lowell recently. There were miniature hives in an apple-orchard, dolls with hoods of net tending them. The trees were made of bayberry shrubs with the berries painted red. Above was a sign "An Apiary," and a large number of visitors stepped up to ask her what sort of animal an apiary was.

Miss Wright believes that all beekeepers should raise their own queens, as queens sent by mail are more or less injured.

Henry W. Britton.

Stoughton, Mass., March 20.

An Inexpensive Way to Bind Gleanings

The following is the most satisfactory way of binding copies of Gleanings that I have yet found: Punch four holes with a leather-punch, one pair near each end and about ¼-inch from the back edge. Then get two pieces of tough cardboard for corners and punch corresponding holes in them. The holes should all be punched with the same pattern. Strong cord is used to tie them together. I put six issues in a volume, as this is the handiest size. The word Gleanings and the date of the first and last issues are written on the corner, and the volume is complete. These volumes can be opened and handled as easily as a book, and any article can be quickly referred to.

Jennings, Kan. M. L. Dodson.

Taxes on Bees in Wisconsin

Can bees be taxed by law in Wisconsin? If so, what is a colony valued at?

Cylon, Wis., Jan. 18. Almond Kohn.

[This was referred to Mr. France, who replies:]

Bees are assessed and taxed in Wisconsin (five colonies exempt). The valuation is left with each assessor, which varies from nothing in many cases to $5.00 per colony; but generally $1.00 to $2.50 is the valuation given.

I suppose if true law were called to bear in the case, bees by law would be called wild by nature. The beekeeper owns said wild insects by virtue of good management, liable, however, to "skip" any warm day. But the hives and attending fixtures are personal property, subject to assessment and taxes. Some of my apiaries were never taxed, and others have been part of the time, depending on who the assessor is.

N. E. France.

Platteville, Wis., March 13.

The Drouth Broken in New Zealand at Last.

The Acting Secretary of the National Beekeepers' Association of New Zealand, Mr. R. W. Brickell, writes under date of March 15, 1916, that "New Zealand has just passed thru the worst honey season it is possible to imagine. Scores of our largest beekeepers, men whose bees are their sole means of livelihood, are in many instances just at the present moment, when the honey-flow should be closing, still feeding their bees. Hundreds of square miles of our best clover country have been in drouth since May, 1914; but I heard this morning that the drouth broke on Sunday last."

Amherst, Mass. Burton N. Gates.

Who Has Built up a Parcel-post Honey Business?

If any one has made a success of selling extracted honey by parcel post I wish he would tell about it. I should like to know how he got his customers; what class of people they were; what he got for the honey. It looks as if I shall have to take up that line of business, and I should like to know how others have succeeded.

John A. Van Deman.

Benzonia, Mich., March 4.

A Correction.

On page 228, March 15, in my description of the outdoor wax-melter (you call it capping-melter), the word "budge" is used instead of bridge. This is, of course, due to the difficulty of deciphering my hieroglyphics. My 'r' looks like the first half of a 'u.' The word 'budge,' as printed, has no meaning, and renders the description of the melter unintelligible. It's my fault for not writing plainer, and I'll try to do better hereafter.

Salem, Ida. Joseph J. Anderson.

A Clergyman's Out-apiary.

My work as pastor of a charge does not give me the time one should have if he were to keep many colonies in an outyard; but with the 20 colonies three miles northeast of town the colonies were stronger and made more honey than my 25 colonies at home, where there are perhaps 50 colonies in the town.

First, I built my colonies up strong with bees early in the season, putting on the supers with bait-combs as fast as the bees would occupy them, always being sure they had plenty of room. At the first sign of swarming I set off the supers and looked for queen-cells. When they are about ready to cap over I take away the queen, killing her if I find her undesirable, leaving only one queen-cell. If she is a good queen I use her in making my increase. I had only three natural swarms in this yard, two being found hanging in a tree near by, and these were where I had overlooked the queen-cells. I had no natural swarms in the yard at home. These colonies averaged 100 pounds of honey each, besides making a 40-per-cent increase.

My bees are almost all of the golden Italian strain, and I find that these, with a possible cross of the leather-colored Italian, are the best all-purpose bee for this part of Iowa.

Stockport, Ia. J. W. Stine.

Two Tons of Comb Honey from 75 Colonies.

I am running for comb honey only. Last summer, 1915, I got nearly two tons of honey per 75 colonies. I prevent swarming by giving the bees their supers the last week in March, and give them plenty of room in front of the entrance so that they have plenty of room for air. A small entrance will make bees swarm, it matters not how many supers you have on. During the honey-flow bees want a large entrance. Give them the full front entrance open, about 1 inch high, 12 to 14 inches long. This is a good cure for swarming.

But the best remedy I ever discovered is to cut queen-cells every seven days for two months. This means the months of May and June; and be sure to keep the hives shaded by using a special cover or roof for shade. Shade is a big swarm preventer; but be sure to give your bees plenty of room during the honey harvest.

Wrightsville, Pa. E. E. Sterner.

Meadows White with Bloom in March.

I have been looking at my bees this morning. They are in fine condition, and they will have all they can do very soon now. Some white clover is in bloom, and the blackberries are almost ready to bloom too. When they come out the meadows will be white with blossoms for miles in every direction.

F. T. Sedgwick.

Washington, La., March 2.

A. I. Root

OUR HOMES

Editor

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.—I. Cor. 2:9.

Thou shalt love thy neighbor as thyself.—Matt. 22:39.

Thou God seest me.—Gen. 16:13.

I suppose most of our readers have noticed an item in the papers concerning a remarkable hen named Lady Eglantine, that laid 314 eggs in the year ending Oct. 31 at the Delaware Experiment Station. Not only the agricultural papers but the daily and religious papers have been free to comment on the performance. The thing that particularly got hold of me was the statement that this hen was "manufactured to order," if I may so use the term. For some years past, Mr. Tom Barron, of England, has been furnishing the laying hens that broke the record in America. I have for some time been urging that we wanted hens to *lay eggs*, or at least a part of us do. We did not care how they looked, or whether they conformed to the standard or not. We want them (to furnish humanity food—good and wholesome food—at a reasonable price) not only for men, but for women and children who love chickens. George A. Cosgrove, in the *Rural New-Yorker*, says in regard to Mr. Barron:

I frankly admit that Mr. Barron has not paid as much attention to beauty as I wish he had; but the great body of American poultrymen are far more interested in having their hens lay an extra couple of dozen eggs per year than in having their cockerels "carry their tails low." If he had so done, his birds would not have been able to make a record for egg-laying year after year in all the egg-laying contests, that no man in the world has been able to equal.

It was the *Rural New-Yorker*, also, I think, that said that Tom Barron and a poultry expert in Maryland had been working together for some time past along the line of the Mendel theory concerning the laws of heredity; and as a result of their experiments they sent five hens to the Delaware College. There are two points here that will be of interest. The test was made by the college, and was, therefore, of course, unbiased. Secondly, she was one of five furnished, and the other four made a record well up toward the 300 mark. If the results were from a single hen we might consider it a freak or an accident; but if four of the sisters proved also to be tremendous layers, it begins to look as if the poultry world had finally got hold of something. I said to Mrs. Root one day that I would give a dollar apiece for a setting of eggs from Lady Eglantine; but pretty soon the papers said the eggs were bringing *five* dollars apiece; later, *ten* dollars; and finally the *Christian Herald*, in writing up Lady Eglantine, said, "It is said that her eggs sell for sixty dollars each." I soon ascertained that this was a mistake; and, by the way, I wish our periodicals, all of them, when they begin to write up things out of their regular line, would be a little more *sure* that they are right. Submit the matter, for instance, to somebody who ought to know, or some one who is posted along the line in question. Well, I finally wrote to the owners of Lady Eglantine, and found I could get one of her eggs, with fourteen others thrown in, these latter being eggs from her sisters, for $20.00; and, furthermore, they offer eggs from her sisters, or hens nearly related to her, at only $2.50 per 15. In due time the eggs came by express on a long trip away down to Florida; but I was greatly disappointed to find, after the seventh day, only three eggs that showed clearly fertile, and I succeeded in hatching the three chicks. They came out about the first of April. I wrote, explaining the matter, and the company very courteously expressed to me at once another setting. From this setting I secured *six* lively chicks, making nine in all. On Monday, April 17, I put the nine chicks, three of them three weeks old, and six about one week old, into a market-basket, and sent them by express to Medina. By the way, I was greatly pleased to find it cost only *69 cents*. I suppose the express company was figuring down close because of the inroads that parcel post has made on their trade. The chicks were on the route four days; but they came to hand bright and lively, and ravenously hungry for water and bread and milk. I supposed I put sufficient wheat, rolled oats, and grit in their basket to last them; but it seems it did not hold out. Just now they are out in the bright April sunshine here in Medina, making explorations in every direction, and even over on to the neighbors' premises. After their long hours of being shut up, and especially the last day without food or water, they appreciated the Ohio angleworm in a way that I never saw chickens do before; and I am about as happy as they are to see them scamper about, helping them out of their troubles when they get into them. For instance, a door was left open, and they got in on the clean cement floor of our basement. Mrs. Root not only had a time in getting them out, but also in sweeping up after them.

XUM

Some of you may inquire what the above has to do with my usual Home papers, and particularly what it has to do with the texts I have mentioned. Well, my first text was taken to remind us of a great and precious promise. In years past, in some way I had taken this text to refer to beautiful things after this life is over; but of late I have been thinking it refers also to this present life. If we look about us and see the progress that is being made in everything pertaining to human life and happiness, I think we might recognize the fact that the promise *is* coming. The boys' and girls' clubs along the line of agriculture are not only surpassing their fathers and mothers but the world at large. The developments of science—just think of it! My father, with a good-sized family of girls and boys, came from Connecticut to Ohio with an ox team. Those of you who have lived for sixty or seventy years have witnessed the wonderful strides. Sometimes we think we have got pretty near the limit. Here is a clipping from the *Sunday-school Times*, with a moral to it:

One who has gone deepest into "the deep things of God" has but scratched the surface of the depths of the riches of Christ. Bible study and interpretation is only in its beginning. The most mature Christian has scarcely begun to lay hold on that for which Christ has laid hold on him. A country lad with a mechanical talent some years ago left home to take his first position in a large machine shop. After his first sight of the great room filled with its wonderful machinery the boy wrote home sadly to his father that there was no chance for him. The work had all been done, and, no matter how good a machinist he might become, there was no improvement that he could make. "Before I finished my four years' apprenticeship," he said, in telling the story afterward, "I saw every single piece of machinery in that great shop thrown on the scrap-heap and replaced by new and improved models. And," he added with pride, "my own hands had left their touch upon that new product." The country boy is now himself a leading manufacturer, and is constantly telling young men to remember that it has not "all been done," that electricity, like every other science, is just in its infancy, and is waiting for some boy to dig deeper into the marvelous hidden secrets.

It looks to me as if four years is a rather brief time in which to dispense with expensive machinery in a great shop; but we have the same thing here in our own shop. Machines that we thought a few years ago were about the best thing that could be made, in a brief time have become entirely out of date. And this is true of the farming business as well as of the machine-shops. We are making progress in improving domestic stock; and it seems this is true of the lady cows as well as the lady laying hens. See the following from the *Plain Dealer:*

UPSETS BUTTER RECORDS; $20,000 COW ECLIPSES FORMER PRODUCTION MARK.

BUFFALO, Dec. 10.—Lady Pontiac Johanna, a cow valued at $20,000, has just broken the world's record for butter production by yielding 658 pounds of milk in one week, from which was made 41 81-100 pounds of butter. This eclipses the former butter record by five and one-fourth pounds.

The record cow was milked four times daily under supervision of a representative of the New York State Agricultural Department. Lady Pontiac Johanna is owned by Oliver Cabana, Jr., of Buffalo.

In Our Homes for March 1 I told about that little tract from Charles Gallaudet Trumbull, "The Life that Wins," and I told you in closing that paper that I had at last made a little start along that line, and that is proving true. Where I saw only one wrong thing in my daily habits before, there are now scores; and the above chicken story gives me an excellent chance to illustrate how these things creep in. After I received a postal card from the Eglantine Farm, saying they would send me another setting, free of charge, in thanking them I said something like this: "My good friends, I do not like to be outdone in generosity. If half or more of the eggs turn out fertile I will send you half price for those of the second lot."

When the time came for testing I went into my darkened room and counted out seven of the eggs that showed clearly fertile. Seven is half of fourteen, but not quite half of fifteen. But there was one egg left that I could not fully decide whether it was fertile or not. A germ had started, but there was a faint black line that looked very much as if the germ had died. As I sat there in my darkened room rolling the egg around so as to let the rays of sunlight strike it in different directions I said to myself, "I am really under no obligation to send them $1.25 more, for there are only seven eggs that are *clearly* fertile." A better spirit, however, whispered that the eighth egg *might* hatch a good chicken after all; and then came the question, if I am working and striving for that "life that wins," that higher life, I must learn to love my neighbor as myself. I must give *him* the benefit of the doubt just as readily as I would decide in favor of myself when in doubt. And then I said, "Get thee behind me, Satan;" and, for fear I might change my mind, I went straightway and put a dollar and some stamps in a letter and addressed it to the Eglantine Farm, and felt very much happier than if I had decided to "save" the amount sent. My good friends, I realize that it is a little humiliating to confess here in this Home paper that I still have defeats along the line of self, and temptations to be selfish. Oh, what a world this would be if every

human being were just as anxious and just as ready to decide all questions without *self* biasing the judgment! Where one is truly "hungering and *thirsting* after righteousness" it ought not to take him very long to settle all such questions as the one I have illustrated above: and such a course, as I understand it, is "the life that wins."*

I believe that just now our best authorities recognize two important elements in figuring on better vegetables or better domestic animals. 1. Heredity and then environment. With these nine precious chickens I have heredity—at least I suppose I have—from the Eglantine Farm by paying for it. And now it is my great pleasure to furnish the best possible environment for these high-pressure chicks. It seems to me they fly and scratch and tear around at a bigger rate than I have ever had chickens of a like age do before. By the way, I forgot to note in the proper place some newspaper reports this remarkable hen produced eggs in one year that weighed *twelve times* as much as she herself did. It is said that she eats about a half more food than an ordinary hen, and that, while it requires about 100 days for the ordinary moult, it took her only *50 days*, and then she commenced laying again. Her weight is 3 lbs. 14 ounces.

Before closing, let me go back a little to this matter of improvement in farm stock. From the little pamphlet sent out by the Eglantine Farm, Greensboro, Md., I clip the following:

> And we desire to give full credit to Mr. Tom Barron, whose personal help and professional interest have followed our work. We have made every female bird on the farm. We follow the Mendel laws of heredity.

Notice the expression, "We have made every female bird on the farm." That is, they laid the plan, selected a path, and went to work to build up a superior strain of egg-producing White Leghorns. They went to work as a carpenter starts out to build a house or a machinist to make a new machine; and then they let the Delaware College take the product and report the result to the world.

* Under circumstances like these we are often inclined to think it is entirely an affair of our own; nobody knows anything about it. We can decide one way or the other, and the great wide world will never be any the wiser or know anything about it. At such times as these it is well to keep in mind that other brief little text, "Thou God seest me." Instead of thinking that we alone are to decide, let us think rather of that beautiful poem that we gave the readers of GLEANING: some time ago—"Alone with God." And may we not strive, in our effort for that "victorious life," to feel always and under all circumstances, that God *is* with us—that there is no *possibility* of escaping the fact expressed in the brief text, "Thou God seest me?"

HAVING SUNDAY ON SATURDAY.

> I have been reading your Homes for the last ten years. I don't believe I have missed one paper, and I have enjoyed them and profited by them. I am told by some of my friends that Sunday is the first day of the week, and that God blessed the seventh day, or Saturday, and made it the sabbath. It is not convenient for me to keep the seventh day, and I wish you would point me to the time and place where God gave authority for the change. I should like to think as you do in this matter: and certainly a man of your position and influence would not teach anything without first looking into the matter for good reasons for his position. So I look to you for enlightenment, and I am sure you can help me.
>
> Fennville, Mich., Oct. 16. E. H. JACKSON.

My good friend, if you have been reading my department of GLEANINGS for ten years past it seems to me you must have noticed what I have said about having Sunday on Saturday. Suggest to the good friends who insist that mankind would be better, and that God would be better pleased by such an arrangement that they call *Monday* the first day of the week, for it really is the first business day, and then we'll have peace and harmony. But one of the Advent friends replied when I suggested the above, "We won't have it so." Once more, on the opposite side of the earth they could not have Sunday on the same day we do, because it's midnight; and there is an island in the sea where there is a dispute about which day is Sunday. Part of the inhabitants came in from the east and part from the west, and the matter isn't settled and cannot be settled unless the people agree to call a certain day Sunday. As I see it, there is nothing in the Bible that does tell or *can* tell which day is Sunday; and it behooves us as Christian people and followers of the Lord Jesus Christ to agree about Sunday as well as other things and turn in and work together.

If we could agree on voting so as to do away with the liquor business, and in the same way do away with wars and bloodshed, it seems to me it would be a *thousand times* more important than wasting our time about which day should be Sunday.

CAN A CHRISTIAN GO TO WAR?

In reply to my footnote on p. 1084, Dec. 15, A. F. Foster replies as below:

> Let me say that desperadoes and criminals might be treated as we treat the dangerously insane—restrain, confine, restore, and reform if possible, as we would a member of our own family. Let *none* be set at liberty until judged safe. For us who have learned the *perfect law*, it seems easy and safest and a method God has promised to bless.
>
> Nampa, Ida., Jan. 8. A. F. FOSTER.

But, my dear brother, it often takes a *deal of fighting* to "restrain, confine," etc. As I pen these lines, April 6, our nation is spending untold thousands in the effort to

"restrain, confine" Villa that he may cease murdering Americans. Shall our nation cease trying to protect its peaceful citizens?

"GOD'S KINGDOM COMING."

The *Christian Herald* for April 5, after recording the startling progress prohibition is making in *Canada* and neighboring provinces, closes with these words:

> The nation-wide, the race-wide war on the liquor traffic which is being waged by Christ's followers is one of the signs of the establishment of his kingdom in accordance with this prophecy: "They shall not hurt nor destroy in all my holy mountain; for the earth shall be full of the knowledge of the Lord, as the waters cover the sea.—ISA. 11:9.

Notice the words, "The *establishment* of his kingdom."

REDBUGS, "JIGGERS," FLEAS, AND OTHER "VARMINTS."

Friend A. I. Root:—I suppose you are right in the flush of the redbug season. The little pests are just beginning to crawl out from their winter hiding-places here. I have read with much interest all you have had to say regarding that insect. For more than thirty years I have been battling with them every season, and have learned how to diminish, somewhat, the annoyance they create. I wrote to Dr. Riley, Chief of the Division of Entomology, Department of Agriculture, Washington, a good many years ago, for information regarding the jigger, or redbug. He said there were two varieties, belonging to the flea family—the *Penetrans* and the *Imitans*. They are found everywhere south of the Potomac and Ohio rivers, but more numerous in the gulf states. They are white and invisible until filled with blood, when they can be seen by some persons with the naked eye. Grease or strong essential oils rubbed on the parts exposed to them will keep them away.

I have tried many methods and substances, and have settled down to the following plan: After being exposed to them by being out in the bushes or weeds, bathe with carbolic soap or a few drops of carbolic acid in the bath water in a wash-dish. To stop the itching and burning, I moisten the places with strong ammonia water into which I have mixed enough oil of citronella to make the mixture pleasantly aromatic (I use the same for bee-stings); then rub about the ankles and other parts troubled a mixture of kerosene with moth-balls dissolved in it, and enough oil citronella to make a pleasantly fragrant lotion. Before going out into jiggery places rub some of the moth-ball-coal-oil liniment about the ankles and wrists, etc. They hop on to our clothing and crawl into the meshes of the cloth, and many remain there for days or weeks ready to devour us when we put them on.

To head them off, last year for the first time I cut the top out of a five-gallon honey-can, pounding down the rough edges smoothly, placed my jiggery garments loosely in the can, poured about a teaspoonful of bisulphide of carbon on a rag, quickly laid it on the garments, and covered the can with, first, a piece of soft towel paper, then with a piece of board weighted down. In half an hour or longer there were no live redbugs in my clothes. I could put them on and feel sure of getting no more bites. Fleas, seed-ticks, bedbugs, chicken-mites, nor any other insect, can live long in the bisulphide fumes. But be very careful not to have any fire near the bisulphide.

Mentone, Ala. DR. C. F. PARKER.

Thanks for suggestions, doctor. I am glad to say redbugs have given us very little trouble here during the past winter. Our remedy is a strong solution of sal-soda. As soon as you feel the itching, give the place a good scratching and then apply the solution. It will, doubtless, make it smart at first, but it is soon over, and the insect is killed. It should be applied, however, just as soon as you discover you have been bitten.

MITES, CRUDE OIL AS REMEDY.

Mr. A. I. Root:—I just read your article in Nov. 15th GLEANINGS on sticktight fleas and mites. I was bothered with mites for two years after buying some roosters. I let them get quite a start before I noticed them. I cleaned my hen-house every morning, so I thought there was little danger of insects, but I have found by experience that, with several hundred hens, it is necessary to spray often and keep close watch. I tried moth-balls and coal oil in the nests. Of course I burned all straw, etc., in the boxes and charred the boxes as soon as I discovered the mites, and sprayed with coal oil, soapsuds, and crude carbolic acid; but still I had mites under the roosts, and places where spray didn't reach. So I got crude oil, nasty black stuff, and painted roosts and sides of walls. Of course I did that several times in all coops; but it did the work. I have no more mites, and have had none this season. Of course hens get daubed; but it soon wears off.

I have found spraying with strong bluestone water to be effective with fleas. I think they must be short-lived, as they disappeared, so I don't think they breed on the fowls. Of course a person can grease chickens' heads, which will kill the fleas; but that would be some work with several hundred hens.

Manteca, Cal., Dec. 12. ERNEST E. WARREN.

As long as the crude oil remains "dauby" and sticky, mites are pretty sure to stay away. I am glad to add we have not found a mite on our premises here during the past winter, and it is several years since I have seen a "sticktight" flea. As the country becomes settled up, I think these *usually* disappear. Even "redbugs" now trouble very little.

REDBUGS, PINE-NEEDELES FOR MULCHING.

Mr. A. I. Root:—I have before me your reply to my letter of Feb. 25, in GLEANINGS for Nov. 15. After reading it I asked my sister-in-law, who has lived in Florida some time, if the redbugs there were the same that we have here, and she said that they are the very same. Now, you may never have seen a redbug; but I am sure I have seen a great many of them. They have to stay on long enough to get full of blood, however, before they can be seen. At that stage they appear as a very tiny red speck that is hard to see. We have also the chicken-mite here, and it is a very bad customer. As to the mulched potatoes, I don't know why the bugs did not bother them; but I think the pine needles kept the ground so moist that the tip-burn, which is said to be caused by drouth, did not get a chance at them. I don't think the odor had anything to do with it. We use dead pine needles here for mulching, bedding stables, and for some other things. They make fine bedding for stock.

Arcola, N. C., Dec. 1. J. F. HUNTER.

HIGH-PRESSURE GARDENING

SWEET CLOVER; A QUESTION, ETC.

Mr. A. I. Root:—I should like a little information in regard to a piece of ground that I raised a crop of sweet clover on two years ago. I let it go to seed and plowed it under in the fall. I put corn on last summer, and got a good crop. I want to plow it this spring and put oats on it. I turned all the seed down. Would it be safe to turn that seed up again and sow oats and get a good stand of sweet clover, or must I sow more seed? If so, how much to the acre? This piece of land lies on a hill hard to haul manure to, so I have put sweet clover on as a fertilizer, and intend to sow oats this coming summer, mow the sweet clover, and the next season put corn on the same piece, using the clover as my fertilizer, and put on about 8 bushels of lime to the acre every third year. This is my plan, and I have come to the conclusion that I can reap a crop every year by sowing other clovers and vetch in the corn. This has been a very poor field, but I got two loads of soil of a lady about a mile from here, who had a patch of sweet clover in her yard for a flower-bed. The seed she gathered in the Wyoming Valley along the Susquehanna River, so she wanted me to rid her of the clover by taking the soil. I didn't quite rid her of the clover, but I got a good stand, and my bees worked it all summer. The clover grew as high as seven feet in some places. Some of my neighbors laughed at me when I told them about sweet clover; but I am getting the clover, and corn twice and even three times over what they are getting, so I will still stick to sweet clover. One of my neighbors likes to hunt. He said that clover was the largest crop he ever saw on that field, and he wanted to know what I put on that corn to make such a good crop. I told him sweet clover and a handful of hen manure and ashes to every four hills. He said that was the biggest crop he ever saw growing on that field. I wish to show this section that sweet clover is their best friend if they get acquainted with it right, and give it only half a chance.

Dallas, Pa. H. HEADMAN.

My good friend, I cannot answer positively, but my impression is you will get plenty of clover without sowing any seed if you let all the seed fall on the ground before plowing.

SPINELESS CACTUS; MISLEADING ADVERTISING

We clip the following from the *Florida Grower* of April 1:

Some time ago we were threatened with a lawsuit because we refused to accept the advertisement of a man who wanted to sell spineless-cactus slabs. We refused this business because we believe that the only man who will make money from spineless cactus in Florida is the man who sells the slab seed at $1.00 each. I had been thru the spineless-cactus furore out in California ten or twelve years before, at which time the promoters claimed that its production would revolutionize the cattle business. If there was any part of the United States where cactus would grow it would be in the dry valleys and on the desert, and it did indeed seem as tho it could be grown without expense and in prodigious quantities there, and that if it was all its promoters claimed for it that cattle could be fed for almost nothing. However, we noticed that the agitation soon died down, and at the time we were offered the spineless-cactus advertising we wrote to Prof. Cook, Horticultural Commissioner of California, asking him what the results had been. His answer determined us that we were right in refusing to endorse spineless cactus, and this attitude on the part of Prof. Cook was also the attitude of the heads of our own State College and Experiment Station. The suit was never brought. A recent ruling of the Postoffice Department is that papers have a right to refuse to publish advertisements when, in the judgment of the editor, it would not be for the best interests of the paper or the community it represents.

I have never doubted that a publisher had this right, but it is just as well that this ruling settles the question for all time. We have consistently refused to accept advertisements offering liquor, patent medicines, fake employment agencies, and the like, and the land company that gets a permit to use our columns had been closely scrutinized, tho we have inadvertently carried advertising of this kind that we would not carry again. Occasionally we are fooled by parties who seem to be all right.

We commend the *Grower* in the stand it has taken, and devoutly wish there were more such editors. The wild cactus is certainly a boon to cattlemen (see letter below), but it may not pay to *grow* spineless cactus.

THAT GASOLINE-TORCH (SEE P. 253), AND SOMETHING ELSE.

We saw in GLEANINGS of March 15 where you wanted to know about the gasoline-torch and where made. I would say they are sold in Pearsall, Texas, by Beever & Hinds. The "pear-burners" are used quite extensively in southwest Texas to burn the thorns off the pear so the stock can eat it. The prolonged drouth lately has brought many of them into use. The stockmen employ Mexicans to run them, and you can see a hundred head of cattle following the Mexican as he singes the spines off. We would send you a picture of one as the Mexican burns the pear if we had the time to get it, but we are busy with the bees now. The bees are gathering honey from the mesquite; and if the rain came now it would spoil the bloom, so the beekeepers are not wishing for rain while the stockmen are; and those that have both cattle and bees are betwixt the devil and deep sea.

If it were not for the prickly pear in southwest Texas the stock would die by the hundreds in drouthy times, unless fed cottonseed and cottonmeal. Before the pear-burner was invented, the people used a stick or fork, and with a brush fire would burn for cattle. The gasoline-torch is quite an advantage over the old way.

Nueces County, a stronghold of the antis, went dry. The Texas "pros" are gradually making Texas a dry state. Some of the strongest "antis" are coming over to the pros on account of the brewery frauds that were exposed in Texas.

We are somewhat apprehensive over the war situation between the United States and Mexico. We live below our town about fifteen miles, and now get the mail but once a week. We are about sixty miles from the border, and feel somewhat uneasy. I don't think a Mexican could catch us in some of this brush; and if you could see it you would think we could never be found except by a dog.

I think the gasoline torch costs $18.00, but since all kinds of metals have advanced in price it may be much more now.

We look forward to the semi-monthly visits of GLEANINGS, and turn to the Home Talks the first thing. May you be spared to us and all the readers of GLEANINGS many years.

My good friend, when I got to the end of your very valuable letter and saw "not publish," I was vexed, and I have taken the liberty of disobeying, omitting your name. God grant the troubles with Mexico may be peaceably ended.

TEMPERANCE

REFORM(?) LITERATURE SENT OUT BY THE BREWERS' ASSOCIATION.

We clip the following from *Christian Work:*

The U. S. Brewers' Association is very active nowadays in distributing literature. "Beer Good for Ball-players," and other leaflets of similar caliber. Among the rest is a flyer entitled "Saloon Closer to Christ than Churches," which describes an alleged debate under the superintendency of Mr. E. J. Ward, a former Presbyterian minister, now employed by the University of Wisconsin, to awaken interest in community centers. At this debate it was decided by a vote of ten to five that "the saloon of today follows the general ideas of Jesus Christ better than the church." It was suggested that the good-fellowship of the saloon must be combined with the spiritual ideas of the church, if the latter is to fulfill its mission, and wound up with "Were Jesus to come back to earth, the church would be his first object of attack and not the saloon!"

We are told that drowning men grasp at straws, and the above seems to be a pretty good illustration of it; but when they try to make out that beer is good for baseball players it seems they have got hold of a very flimsy bit of straw. While we have no particular desire to see the brewers of the United States suffer death literally, we are very glad indeed to see indications that their entire business *is* fast going to the bottom of the sea.

KANSAS AND PROHIBITION; STILL MORE ABOUT IT.

So long as the "wets" keep scattering their misleading and false statements we propose to keep on giving the truth. We clip below from the *Christian Herald:*

PROSPER IN PROHIBITION KANSAS.

Despite the expression of deep distress upon the part of the liquor dealers at the failure of prohibition in Kansas to prohibit, it does prohibit marvelously well, according to the most reliable testimony. The attention of the whole nation was attracted by the report for 1915 of a mortality of only 9.8 to the 1000 of population, being the lowest of any state in the Union. Samuel L. Rogers, director of the United States Bureau of the Census, wrote to W. J. Deacon, Registrar of Kansas Vital Statistics, asking why the death rate was so low. Mr. Deacon in his reply gave prohibition credit for a full share of the public health in these words: "Kansas is a prohibition state, and in Kansas prohibition really prohibits." He said also that there was general education, the people had money enough to make them comfortable, and were wise enough to avoid the things that impair health and shorten life. Kansas began the new year without a dollar of indebtedness, having burned up the last mortgage for $159,000, and claiming the enviable notoriety of being about the only state in the Union free of debt. Prohibition Kansas holds in one hand the cleanest bill of health, in the other the completest financial exhibit, while in the mind it has truth and in its heart love. The violent denunciations of the failure of prohibition in Kansas by those whose pockets have been affected by it, and by those who have been deceived by their false statements concerning it, do not change the fact that prohibition in that state does prohibit, bringing with it the reward of health, intelligence, thrift, and virtue. Kansas with eighteen sister states is by its law saying: *Look not thou upon the wine when it is red, when it giveth its color in the cup, when it moveth itself aright. At the last it biteth like a serpent and stingeth like an adder.*"

SAVING THE COST OF DOCTOR'S BILLS.

If you are not already taking *Farm and Fireside,* you had better send for the issue of April 8 and read the article entitled "How a Kansas County Decreases its Number of Deaths a Third." It may be worth a good many dollars to you. I clip from it as follows:

The death rate to the thousand for Kansas is 9.8, which, according to a recent federal census statement, is the lowest death rate of any state that is conducting a state-wide health work.

Such a record as Riley County has made is possible only because the work has been in charge of a competent, progressive, and efficient man. Dr. J. C. Montgomery has been the county health officer, and has directed the health work of the county since it was started six years ago. He has taken the public-school children and their parents into his confidence. Now after six years' work the school children as well as their parents are well informed about disease. They know the causes of disease and how to prevent sickness.

Since the health work was started the death rate for the county has not only been decreased greatly, but the people have been saved thousands of dollars in doctor and medicine bills, and every one has been able to do better and more work because they have been enjoying health.

The cost of conducting the health work a year has been slightly more than 6½ cents a person. And this isn't really an expense: it is an investment, because the saving in death losses, doctor and medicine bills alone is many times more than the actual money spent.

Many persons who some time ago ridiculed the health department and complained bitterly every time a few dollars of the public money was used to prevent disease now indicate not only a willingness but a keen desire to co-operate with the department.

I did not find any mention in the article in regard to prohibition in Kansas; but the fact that Kansas stands almost if not quite at the head of our nation as a healthy place to live is doubtless largely owing to the absence of saloons.